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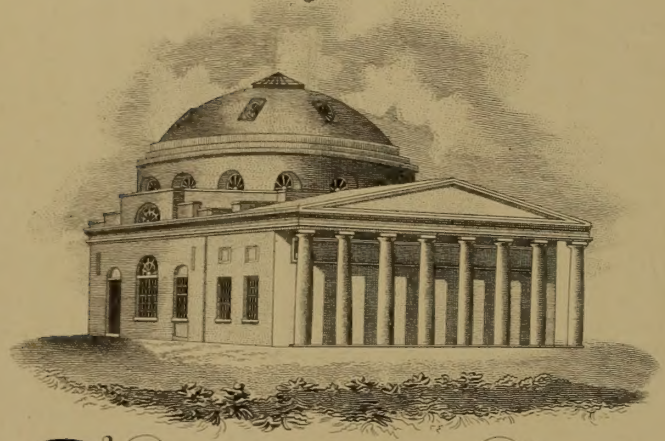

University of Maryland

University of Maryland Theses

Early Doctor of Medicine and Doctor of Physic Dissertations with Corrected Tables of Contents

These manuscripts described as either an Inaugural Dissertation or an Inaugural Essay were presented to the University of Maryland for the Degree of Doctor of Medicine and/or Doctor of Physic during the years 1813-1887. The individual dissertations were bound together during the 1940's. The original tables of contents for the bound volumes contained multiple errors in authors' names, titles, and/or years. To address these errors, an additional "Corrected Table of Contents" has been inserted at the beginning of each volume.

The project team who investigated and corrected the tables of contents were Richard J. Behles, Historical Librarian/Preservation Officer; María Milagros Pinkas, Metadata Management Librarian; Angela Cochrane and Carol Harling-Henry, Resources Division; Sarah Hovde, Abra Schnur and Megan Wolff, Services Division.

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UNIVERSITY OF MARYLAND

THESES

1885(a)

Author	Title	Notes
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Floyd, Alva G.	Ague	(no title page)
Coble, Aaron C.	Remittent Fever	
Caldwell, D. Greenlee	Diagnosis of Pregnancy	
Cort, John Calvin	The Blood	
Janney, Charles H.	Typhoid Fever	(no title page)
Hopkinson, B. Merrill	The Blood and Its Circulation	
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HSHSL 2012 for the UM Digital Archive. Sources consulted for corrections: Original Dissertation; University of Maryland Medical Faculty, Matriculation List, 1851-1892; Cordell, Eugene F. "University of Maryland, 1807-1907" (New York : The Lewis Publishing Company, 1907), Volume 2.

UNIVERSITY OF MARYLAND

THESES

1885(a)

Rice, Charles H.	Diphtheria	21p. (partially faded ink)
Floyd, Alva G.	Ague	26p.
Coble, Aaron C.	Remittent Fever	10p.
Caldwell, D. Greenlee	Diagnosis of Pregnancy	38p. (partially faded ink)
Cort, John Calvin	The Blood	20p. (partially faded ink)
Janney, Charles H.	Typhoid Fever	26p. (partially faded ink)
Hopkinson, B. Merrill	The Blood and Its Circulation	24p.
Clark, Homer L.	Typhoid Fever	24p. (partially faded ink)
Reed, John Henry	Rachitis	37p.
Smith, John Campbell	Simple Intermittent Fever	21p. (partially faded ink)
May, Edmund T.	Intermittent Fever	21p. (partially faded ink)
Gale, H. E.	The Spleen as a Reservoir	28p.
Emmitt, John M. Morehead	Diphtheria	27p.
Murray, John A.	Obstetrical Emergencies	20p. (partially faded ink)
Remert, H. C.	Yellow Fever	16p.
Warner, A. Kimmel	Seasonal Tendency To, and Cure of Disease	30p.

Diphtheria.

Definition — Diphtheria is an acute, specific constitutional disease, both epidemic and contagious beginning by an infection of the throat and fauces, characterized by a local exudation and glandular enlargement, systemic poisoning, and having for its sequelae various paralyses.

History.

The word Diphtheria is derived from the Greek διφθέρα (a skin or membrane) and is one of the most frequent and important affections next to the essential fevers known to man. It has been a subject of much thought and debate by eminent [illegible]

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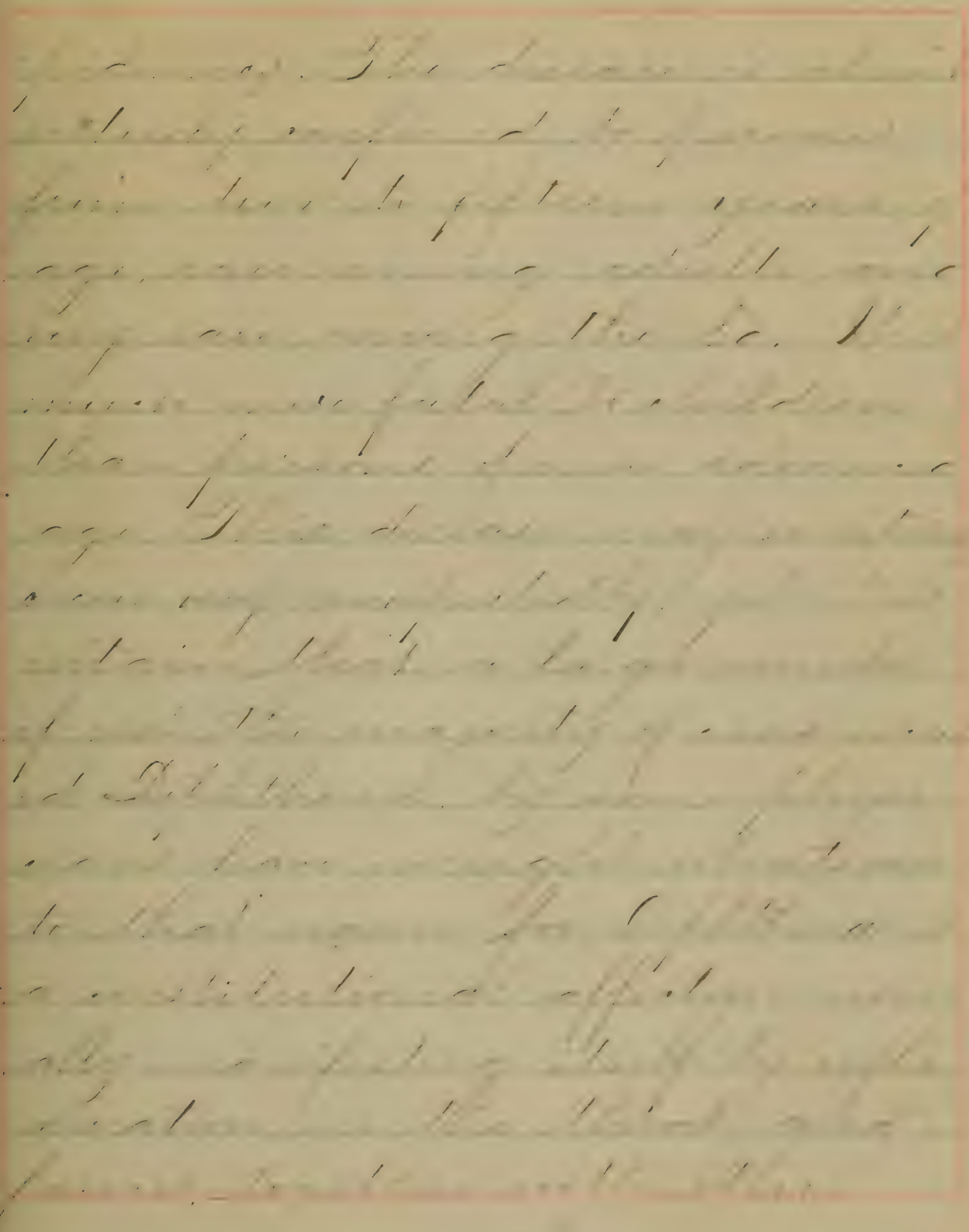
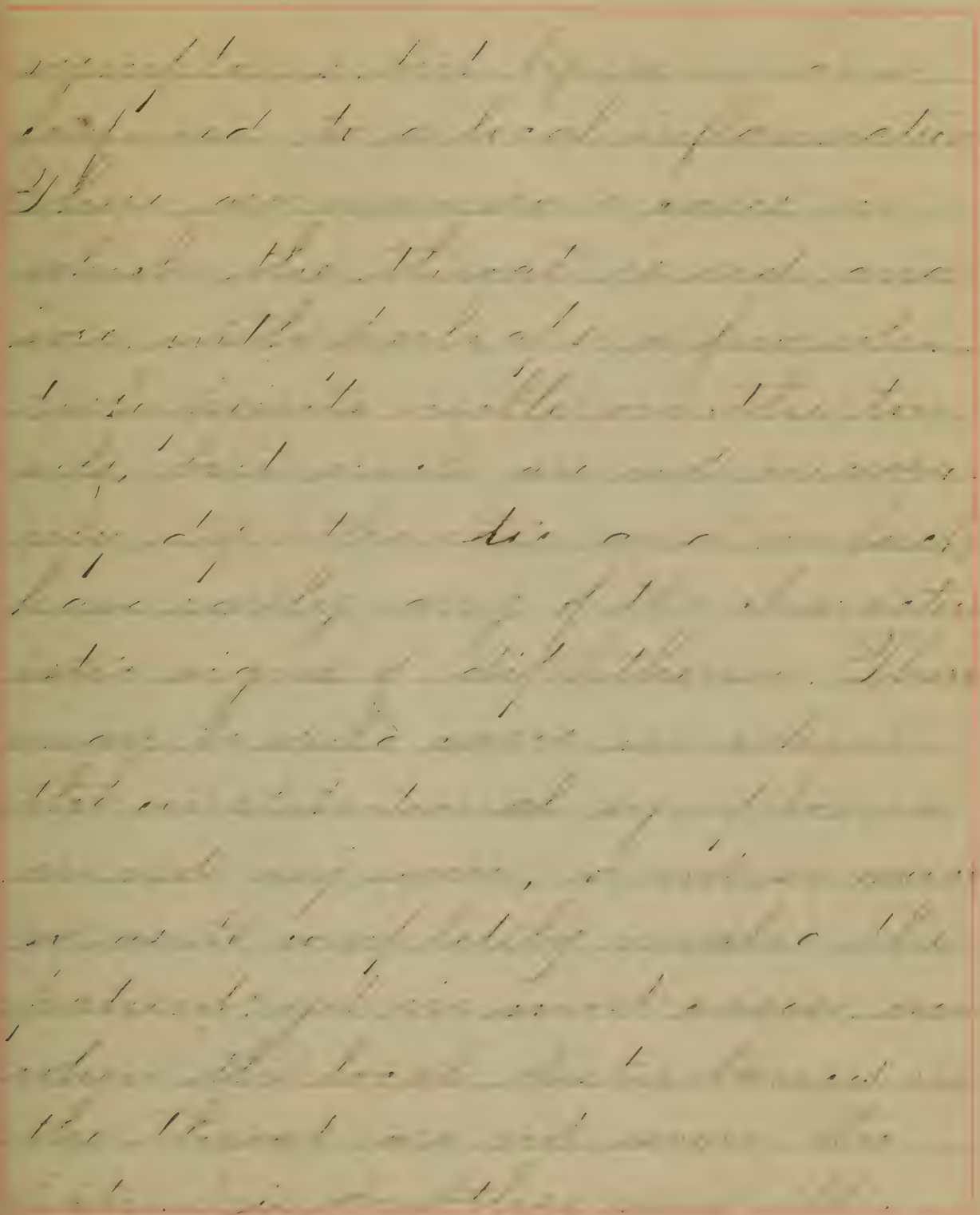




Cause

Varieties

Diphtheria may be considered under four varieties. Viz. 1. Simple; 2. Tonsilitis; 3. Ulceration; 4. Malignant.

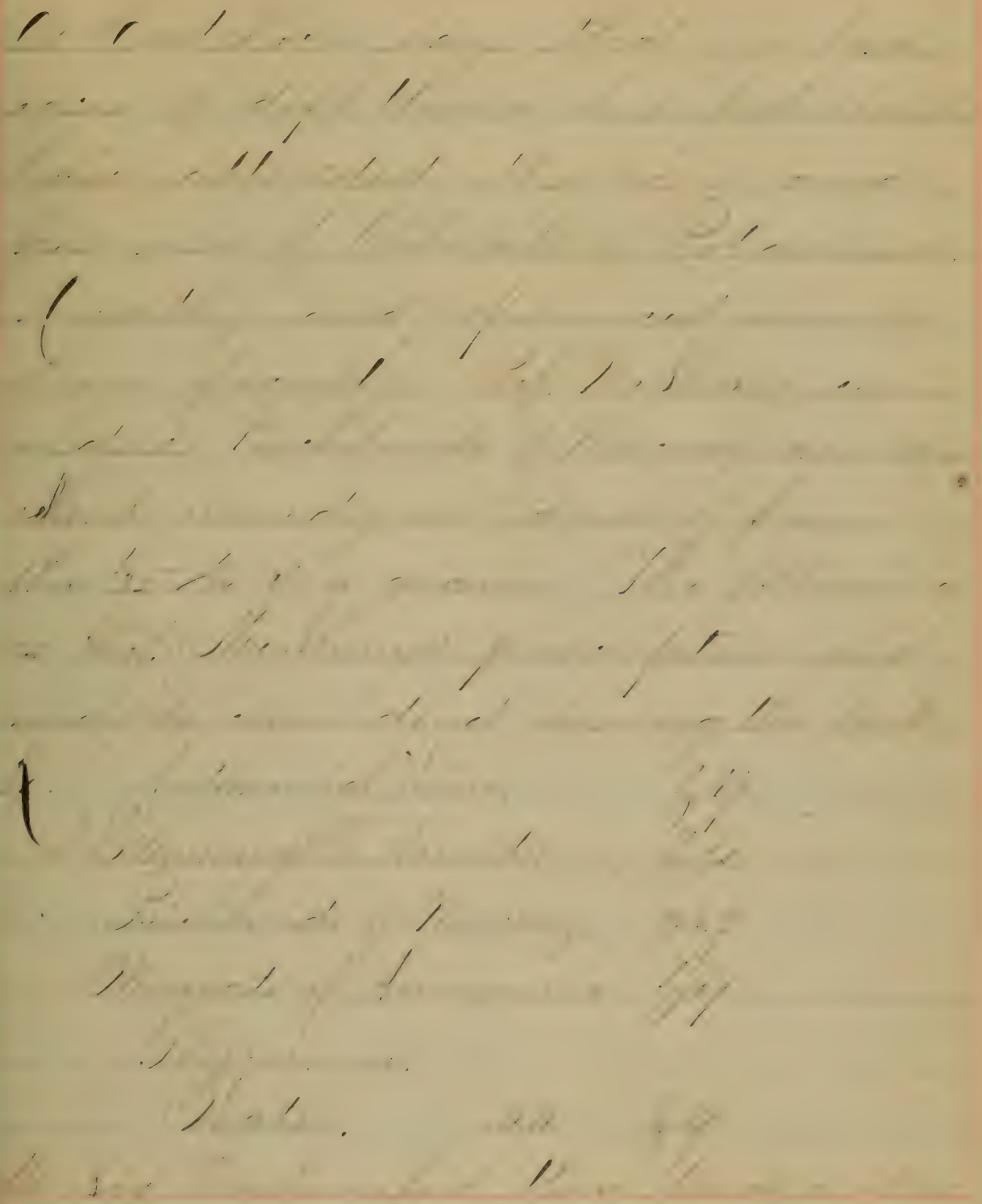
Symptoms

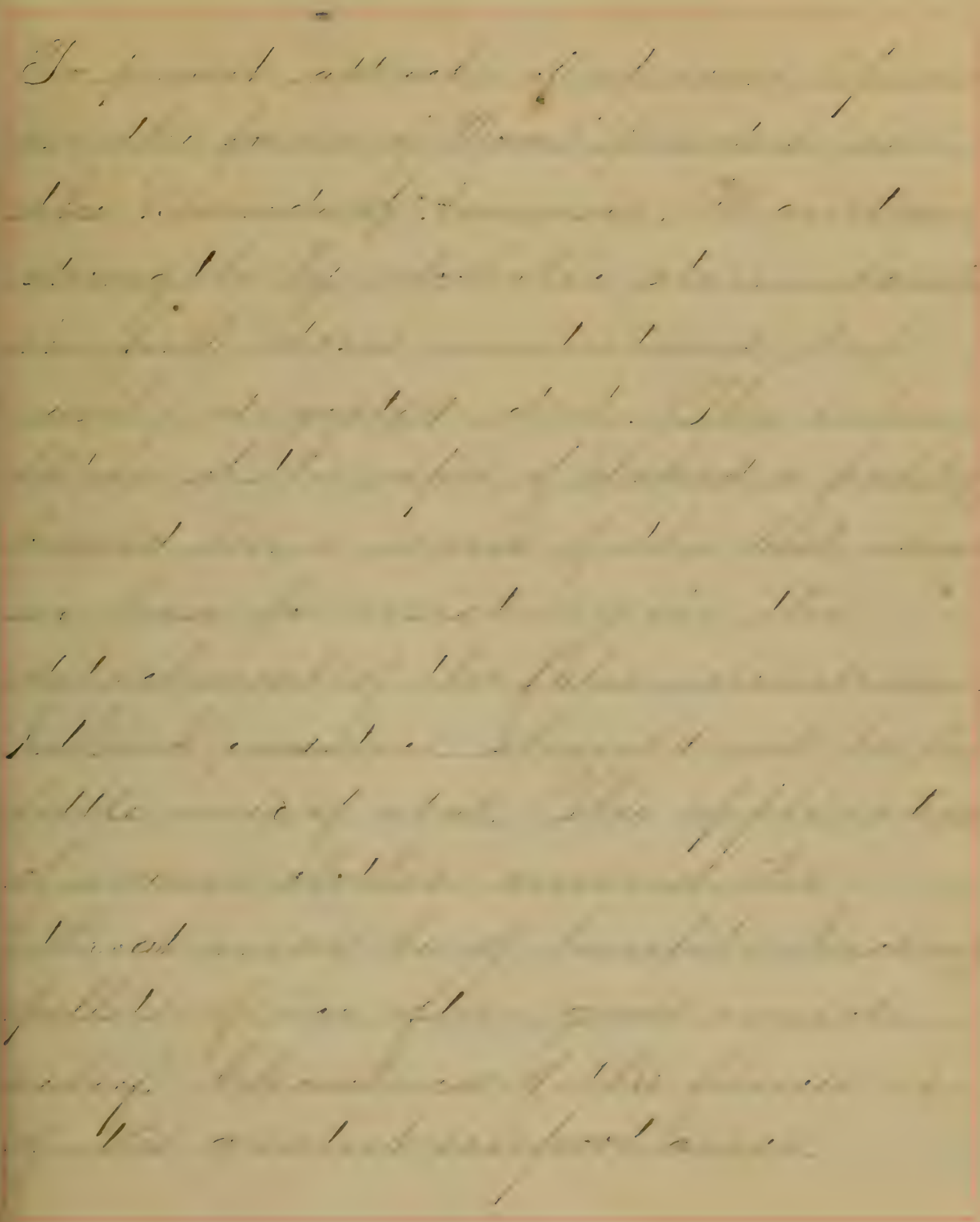
The symptoms of diphtheria, while they agree in most essentials present wide differences in degree of their features. The premonitory symptoms are general malaise, slight sore throat, and swelling of the lymphatic glands in one of the jaw, to attack example, and deep or insidious. In the simple form, from mouse with headache, furred tongue, constipation and difficulty of swallowing.

Complications.

Diagnosis

Treatment.





Ague.

Ague literally means to shake but the term is generally applied to any form of fever having malaria for its origin. There are two general divisions of this fever namely Intermittent and Remittent. There are, however, two other forms both of which are invariable These are known as Typho-Malarial and Continued respectively.

All of these are only different forms of the same disease or rather, from the same cause. These fevers occur mostly along streams of water where there are marshy bottoms lying on either side containing dog

nant water, decaying vegetable matter etc; and is found to occur most often when there is a continued temperature of the atmosphere of about 60° to 80°F. and consequently is found mostly in spring and autumn of our temperate climate. This is especially true of Intermittent fever, and it is of this variety I shall first speak. One of the great peculiarities of this fever is its periodicity, or tendency to recur at stated periods. But just why it should have intervals of seemingly perfect health and then burst fool with exactly the

same form as it commenced with I can not say.

Intermittent fever generally has certain premonitary symptoms. that would almost warrant one in saying he had an approaching attack of Malarial fever. These symptoms begin with a slight feeling of drowsiness; bad taste in the mouth on rising in the morning, tongue may be slightly furred. Patient continues to feel this unwell kind of way till he reaches a point where he does not care to eat, or little desire for either mental or physical work of any kind. He feels that he is

Not well; nor is sick enough to go to bed. May have headache and loss of appetite, and all of these symptoms go on till finally the system seems to get so full of this "mysterious" Malaria till, I suppose I might say an explosion takes place in the form of a chill etc.

This paroxysm begins by patient having a feeling of chilliness creeping over his back, with slow, dull headache, muscular pains and often syncopic discomfort. The chilliness rapidly increases till real rigors begin to run all over him and his teeth will chatter as

from cold. Patients face looks
care worn; his skin seems shrunken with little papules thickly
standing in. This is known by
name of "cutis anserina" or
goose skin. His finger-nails
will be bluish colored. Patient
will want more cover even
if it be in the middle of the
year. If the temperature be taken
at this time when patient is
complaining of being cold, it
will be found to be several
degrees above normal. Though
the periphery of body is really
cold. This is due to some ac-
tion on the "vaso-constrictor
nerves" causing the blood to be

driven from the capillaries into the center of body. Causing a congestion of internal organs While this condition lasts the pulse is small, frequent and often very irregular. Respiration is apt to be hurried and sighing. There is nearly always headache of a heavy throbbing nature. at this time; and pains through the Lumbar region of like nature only more obtuse and not so throbbing. All of this is known as the "Cold stage" or chill, and it varies in length from a few minutes (15 or 20) to a few hours.

It may, also, vary in position; not involving the whole body. The feet and hands may get cold at the time for the chill to come on and no other part of the body be affected; and this may be so slight as to cause the patient but little or no inconvenience.- It is said that the nose, or one finger alone may get cold at the time for the chill, and take its place. But I never have seen so light a chill as this. Still it looks possible since it is thought vaso-motor nerves that it is produced— After the chill or "cold stage, comes the fever or "hot

stage", but the chill does not entirely subside before the fever begins, as one would infer from there being three distinct stages. - After the rigors have lasted for sometime, varying according to severity of chill, the patient will begin to feel more comfortable, then he will begin to get warm; the warmth increasing to a flush, and so on till he becomes as uncomfortable from the heat as he was from the chill. This stage is also uncertain as to length; but as a general thing lasts from three fourths to one and a

half hours. This stage is very often accompanied by delirium especially in those of a Nervous temperament. The delirium does not last long as a general rule, it passing away soon as the fever begins to abate.- Now, this, the hot stage, after reaching its highest degree, which is usually about 103°F. to 106°F., begins to gradually decline- the first symptom of its decline is, the skin loosing its harsh dry appearance, It will next get slightly moist and so on till patient becomes covered by perspiration

After patient commences to perspire he will again feel more like himself - His eyes will now lose their bright wild look caused by the fever. his mouth becomes more moist, in fact all of the secretions of the body having been deranged, now assume their normal functions - This stage known as the sweating stage, like its predecessors, is of varying length, It may last one half hour or two or three hours but, I think, a fair average is three fourths of an hour.

All of the above relates to a typical case of intermittent fever without complications, though it by no means follows the exact rules I have just described - Sometimes the chill will be severe and long, followed by a light fever, or vice versa.

The different varieties of this disease I shall not attempt to describe other than two or three, for I do not recollect having ever seen many of the varieties described by some authors, and besides this I see that some of these authors who give such nice discription

of the quotidian; tertian; quartan, and so on with the ans up to the octan, at last confess that they never had seen some of these varieties, during a large practice in such fevers- in fact, I can not see how, according to the very nature the course of the disease, they can bring in the "octan" variety; for other than its tendency to recur at its every day, or every other day periods as the case may be, it has a tendency to repeat itself at septinary periods, and this would not admit of more than the septan variety, unless

they count the day of its beginning, and they say that it next put in its appearance The varieties most in vogue, if I may be allowed the expression, are the quotidian, when the paroxysm comes on every day; the tertian, when it comes on every other day; and quartan, when it comes on the first and fourth days. The second of these is I think the most common, though the first is not by any means rare or uncommon - some speak of the double quotidian and double tertian etc. I have been seeing malarial fevers ever since

I was eight or ten years old, and I do not recollect ever having seen a case of double quotidian. Even so noted an M.D. as Prof. Horlshorne of Philadelphia, says he never saw a case of it. Let this be as it may, I, an undergraduate, am not expected to have seen as much in this line as an M.D. who has spent many years in the cause.

The next of which I will speak is Remittent fever. This, like the preceding one, may or may not have its premonitory symptoms of long duration. Usually, there will be

general malaise for several days before its onset. Not unfrequently the patient will have a dull headache for several days beforehand, with an unpleasant bitterness in the mouth on rising in the morning, with, may be, some loss of appetite. The disease is ushered in not unlike that of intermittent fever. That is, by a chill followed by fever but unlike the former the fever remains for many hours, or the chill may be absent altogether the fever ushering the attack in. Instead of lasting one or two hours, or less, as it does

in Intermittent, the fever generally lasts from twenty four to forty eight hours, at which time the patient will perspire some, and the temperature which has been up two or three or more degrees will come down almost to normal, This is called the remission, and is what gives the name remittent to the disease. During the remission the patient feels considerably more comfortable- This stage generally occurs during the night and lasts till the following day evening. At this time the temperature will again rise, and usually is higher than

that of the preceding paroxysm. These paroxysms and remissions may, and generally do, go on for one to two weeks if not arrested by proper treatment. Sometimes when not properly cared for the disease will go into a Typhoid state, about the fifth or sixth day. When the disease takes this form it is apt to run a longer course sometimes going as long as five or six weeks. The patient by this time becomes very weak and run down. Ordinarily the disease will have those characteristic remissions. This is I showed

have said concerning Intermittent, does not have its paroxysms come on at the same hour of the day each time. Sometimes, there is observed to be a double Tertian variety of remittent fever, ie. the paroxysm coming on one day in the morning, and the next day in the evening.

Complications. These are usually dependent on local inflammation. The brain is perhaps the organ most frequently affected with cerebritis or meningitis. In late autumn, or other cool weather, pneumonia is not uncommon. Gastritis and enteritis

diarrhoea and dysentery of an obstinate character sometimes occur.

When any of these affections exist, they take to some extent of the periodical nature of the disease; and are often lessened or removed by the treatment adapted to the disease.

In other cases, however, they remain in a subacute or chronic form; and when death occurs, in a majority of cases the immediate cause is disease of some organ. Hepatitis and Splenitis are more common in the chronic form than in the acute and as sequelae rather than complications of the disease.

I think that Pernicious fever might, with propriety, be classed as a concomitant of either Intermittent, or Remittent fever, for as a general rule it begins like the former, only in a more intense form, - I do not know whether to call it a distinct disease, or only an extreme of some of the others. However its origin classes it with the other diseases having Malaria for their cause.

Causes of Intermittent and other forms of the disease. - As above stated an average temperature of 60°F or more, for several weeks in succession, to provide

this disease, and this is seen in the fall of the year. most often. consequently the fever is most prevalent at this time. But it is endemic therefore there must be some other cause As it is most often seen along marshy lands, etc. and least often in high rocky districts it would seem, there must be some special something in the soil, or probably in the vegetation, if these places to generate it - Dr. Salisbury, I think it was, of Ohio said some years ago that there was a small variety of cryptogamic plants growing in marshes.

which when transported to places free from Malarial fever would produce it there. The fever is also found to abound more where land is being cleared and turned up by the plow; and so also, it prevails where a stream of water fails to flow and becomes stagnant.

I believe there are some Pathologists who claim to have found the "Bacillus Malariæ" Sequelæ. One after having a chronic attack of Malarial fever, is apt to be very anæmic and run down in general. The Liver and Spleen

often become chronicly enlarged from congestion, Indeed most of the viscera will be congested to a more or less extent. Not unfrequently ascites, or even general Anasarca will follow where the patient has been laboring for a long time under the influence of Malaria.

Prognosis. Death rarely takes place from an uncomplicated attack of Malarial fever. especially of the Intermittent variety. The prognosis is usually good since the introduction of the Cinchona preparations, prior to that time the prognosis

was not so good by far.-
in fact the disease was almost
allowed to take its course.
Alexander the Great, James the 1st
Cromwell and others it is said
died of "Remittent" fever.
Treatment.- Of all medicines,
Cinchona and its derivatives
are the ones "par excellence" in
the treatment of "malarial pois-
oning. It was formerly custom-
ary to "put the system in order" be-
fore giving Quinine, by giving a
purgative of "Blue Pill" or some
thing of the kind. to clear out
the bowell. If the case be an
urgent one you may give
a purgative or aperient if you

chose, and follow it immediately with Quinine. I do not think it should be given during a paroxysm so long as the fever remains high, but as soon as the skin begins to moisten, you may commence giving it. Give it till you get your patient well under its influence, This you can tell by the tinitus Aurium or ringing in the ears of patient. The last dose should be given about two hours before the next looked for attack. — If the patient is anaemic you may combine some preparation of Iron with the Quinine. Where you wish to get the effects of the Quinine quickly

give it in solution. A drop of Aromatic Sulphuric Acid to each grain of Quinine will dissolve it instantly. If the case is a chronic one, Fowler's solution of Arsenic in doses of 5 or 6M. two or three times daily will prove effectual. — There are many other medicines used, but the above are the principle ones. Of course prophylaxis is understood, as performing no mean role in this treatment.

I now conclude by asking the reader to excuse "short comings" as I am only a student. Respectfully.

Jan. 26, 1885. Asa G. Hilyard.

University of Ind.

Remittent Fever
by A. C. Cole

Remittent Fever

By remittent is understood a fever that abates, but does not go off entirely before another attack ensues. The remissions happen at very regular periods, and are of uncertain duration there is a marked decline in the temperature of the surface yet there are more or less indications of fever during the entire existence of the disease.

Cause

This disease is possibly induced by malaria a poison arising from marshes and stagnant water and from

vegetable matter upon or a state of decomposition.

The doctrine of malaria influence is generally received to be correct, although its mode of development and physical and chemical characters are unknown to me.

It never develops below sixty degrees Fahrenheit; therefore is more frequently met with as we approach the equator, where the disease often appears under a highly aggravated and violent form usually prevailing as an epidemic. The fevers develope

more readily when calm, close, sultry weather quickly succeeds heavy rains and great inundations of water.

Remittent fever is never contracted on elevated malarial districts and ground more especially in the autumnal season. Persons of all ages are liable to contract the disease. The fever is not contagious, nor is the malarial poison producing it portable.

Symptoms

The symptoms bear a resemblance to those of intermittent fever, except that there is

no cessation of the fever but simply an abatement or diminution. Alternate fits of heat and cold are experienced with soreness and stiffness of the muscles, especially those of the neck and calves of the legs; the face is flushed, headache throbbing and severe; violent pain is felt in the back epigastric uneasiness is nearly always present. Nausea and vomiting of bilious matter is extremely common the bowels are costive, when moved the stools are colored with bile.

The urine is scanty and

high colored. The heat is great the tongue furred respiration hurried and the pulse is frequent, although less hard than in some diseases. Though seldom delirious the patient is restless and wakeful when not delirious there is always great nervous weakness.

This is the ordinary course of a remittent or bilious fever.

Though mild at its commencement, remittent fever may assume an aggravated character if it continues over nine or ten days.

Diagnosis

We may consider the following the most characteristic phenomena by which remittent fever can generally be discriminated: The regular paroxysmal character and inclination to commence and terminate an intermittent fever. The epigastric uneasiness and irritability of stomach, so prominent in most cases. The almost constant symptom of pain or uneasiness in the head. In cases of bilious matter thrown up the vomiting and purging, the sallowness of the skin and eyes

and the high colored urine.

Other circumstances will materially aid the diagnosis such as the season of the year the place where the disease may have been contracted the exposure, and the time that may have intervened since the exposure.

Treatment

This fever if timely treated yields with much readiness to antiperiodic remedies. The same principle is to be followed as in ague attempts must be made to shorten the accumulation and to lengthen the

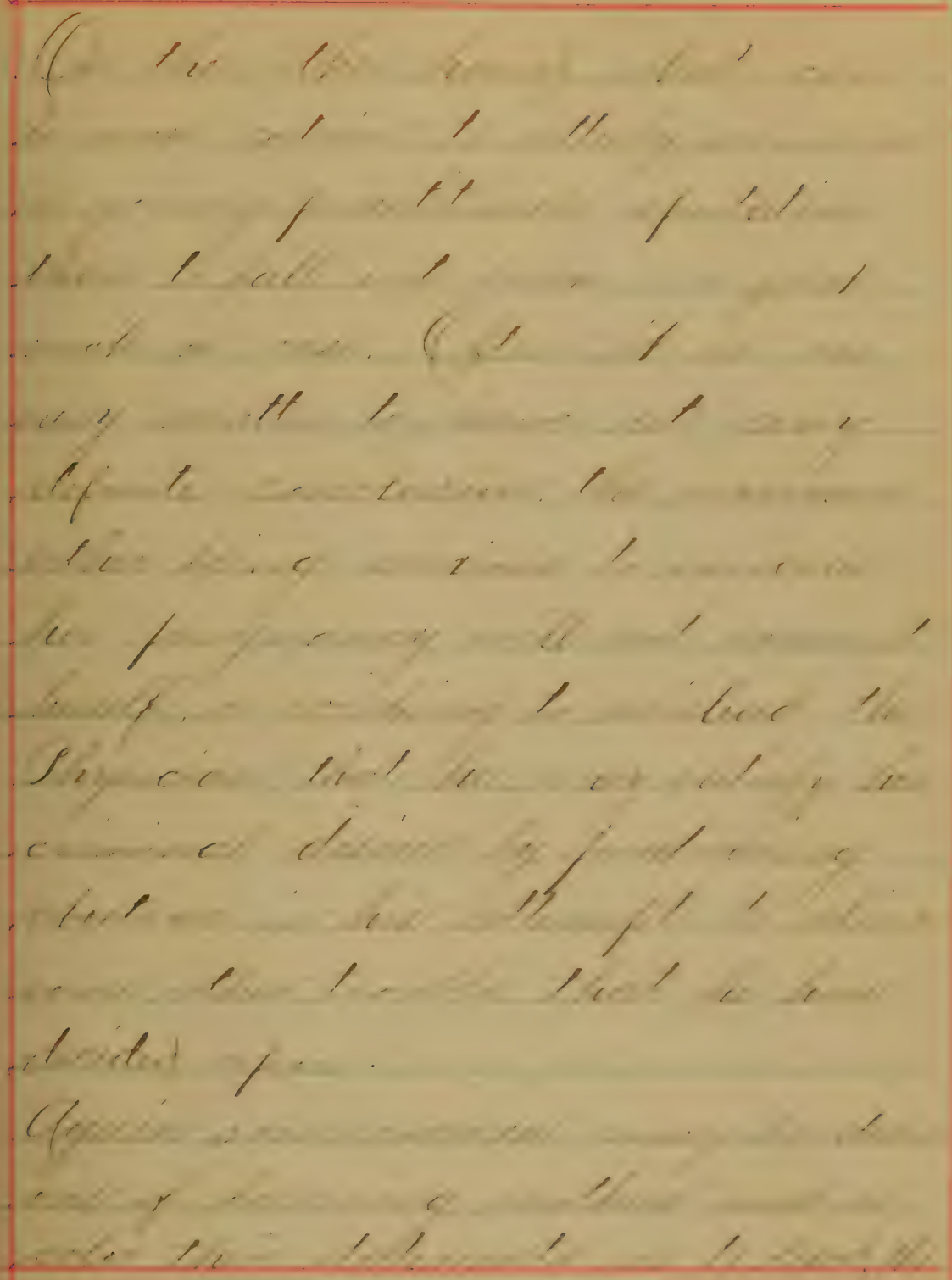
remission. It is common at the commencement of this fever to administer a cathartic, of which a saline is preferable. Some physicians recommend calomel, to be followed by saline draughts. When the stomach is very irritable I think no cathartic is so admirably adapted as the effervescing solution of citrate of magnesia. After the bowels have been freely moved (which is not always essential to commence with) and the excitement partially moderated, we begin to administer antipyretics of which

the preparations of cinchona are held aloof of all other. The Sulphate of Quinine is the preparation to be preferred. If the remission is perfect two grains given every hour or two for ten or twelve hours will suffice When the next remission appears we proceed as before. under this treatment the symptoms will readily improve. Should the remission be imperfect we should not wait, but administer the antiperiodic at once and eventually the skin will moisten and the symptoms ameliorate

As the patient improves we may lessen the doses of the mixture. For a stimulant diaphoretic the Liquor Ammoniae Acetatis may be given during the existence of the disease. Should complications arise which occasionally occur they must be treated accordingly.

A. C. Cobb.

Baltimore Feb 12, 1875



[illegible]

Certain Signs, that are [illegible]
positively that pregnancy exists.
There are only a few of these Certain
Signs these are, 1st Sounds produ-
ced by the pulsations of the foetus
heart, 2nd The active movements
of the foetus felt by an experienced hand
3rd The passive movements of the
child as are produced by ballotte-
ment (Provided you are certain that moving body be in [illegible])
If any one of these signs be
made out, the woman is incon-
testibly pregnant. But in regard
to the negative evidence which is
afforded by their absence, this
can only be admitted as proof
that the woman is not pregnant
when the other [illegible] are not

present; the absence of one is only sufficient to warrant a doubt.

While the number of symptoms and signs which give us a decisive evidence of pregnancy are very limited, we must consider the other [illegible] group as constituting a chain of circumstantial and corroborative links. But in this age of scientific investigation, progress and advancement, may we not soon be enabled to diagnose pregnancy with a certainty prior to the fourth month I say with a certainty because after the fourth month we can

The Blood

The great circulating medium contained in the blood vessels is called the blood. As long as it is retained in its proper vessels and as long as the vessels themselves are in a healthy state it is a fluid. It is however essentially a solid substance.

It is the most complex substance of the animal body being composed of distinct constituents. Each of which is endowed with specific properties. Taken as a whole there is no thing that is perfectly [illegible] [illegible]. The body contains two kinds of blood which present

great differences in color. Its
blue or venous blood is contained
in the veins. The red or arterial
in the arteries.
It differs not only in color
but also in its functions. The
venous blood is incapable of
nourishing the body and of stim-
ulating the organs. The arterial
being the richest in nutritious
matter and is the great source
of nourishment for the tissues.
In the living body it is a cow
what tenacious fluid and when
examined with the microscope
it presents a great number
of solid particles or corpuscles.

The color of the blood is also very characteristic and usually partakes of the nature, of the preparation of the animal from which it is obtained.

If it be looked at in thin layers it is transparent but if seen collectively it is opaque and assumes its characteristic red color. There is a difference in the Specific Gravity of the Venous and arterial blood. The former being the heavy due to the greater amount of carbon, aqueous matter and effete material which it contains. The Specific Gravity of each being subject to

the tissue elements of each part.
When examined with the Microscope
blood presents very many interesting
points. They [illegible] them are the
corpuscles which are considered as
the solid part of the blood.
The red and white or colorless are the
[illegible]. The red corpuscles vary much
in form. In man they are thick
circular slightly biconcave disks
consisting of a colorless investing
membrane or Stroma, and of red,
or in refracted light viscid yellow
fluid contents. The red differ from
the white in that they are non
nucleated, and biconcave so as
to present a larger surface for the

will be dissolved and the nucleus brought into view.
They possess the power of Amoeboid movements and send out small arms or prolongations from their substance so that their form is continually changing. The [illegible] the power of protruding themselves through the capillary walls and wander off into the tissues. Hence they have received the name of wandering cells or leucocytes.
It is probable that after they [illegible] they take parts in the regeneration of tissues and in the production of [illegible] tissues. In fact having no special function they seem to be on

health as the ferment is never present, or if present it is in so small quantities as not to cause the Coagulation

If however the blood be exposed to the air in from ten to fifteen minutes it will be found to have coagulated. The result of this process is a Clot and a fluid known as Serum. The clot containing Corpuscles, Fibrinogen, Paraglobulin, and Fibrin ferment. The serum contains Paraglobulin, Albumen, Salts, and water.

In looking at a clot which has been exposed to the action of the air for some time you will notice

that the air has lost some of its oxygen which has been given up to the blood and changed the color from a dark red or venous blue to a bright or arterial color. This is resultant the same change which takes place in the blood in the body in Respiration.

The red corpuscles combine in both cases with and thus the blood is oxadized and rendered pure.

The coagulation would not be effected without the influence of the fibrin formed as the other factors which go to compose

the clot are inactive and
lie dormant. The ferment however
lights up the mass into activity
and makes the coagulation take
place. The ferment has not been
isolated as yet.
After coagulation the clot seems
to contract upon itself and
press out all the serum within
its meshes. It finally separates and
the serum a clear straw colored
liquid remains.
The uses of the coagulating power
of the blood in the vital economy
are evident. It is thus that
nature would prevent the loss of
the life giving fluid of the body.

It is upon this power that the cessation of hemorrhage from even the most trifling injuries is dependent.

The sources of this great circulating medium of our bodies are first of all the body itself. In proof of this the following experiment has been made - A dog was bled on one day to the extent of 3 pounds and on the following day after although he had received no food some ten or twelve ounces of blood was again taken from him with out the loss of life. The blood being made from the stores up food which was present.

The next source is the food, this is the greatest source and the process of the conversion of food into blood is an interesting one. It is converted into chyle by the digestion process and this fluid is then brought into the blood by absorption. The transformation of food into blood is already much advanced in the intestines and lymphatics.
As to the formation of the white corpuscles they are identical to the lymph corpuscles and are supposed to be obtained direct from these.
The salts and extraction matters come also from the food.

The respiration is still another source of the blood, not active so much in the production of blood as in its preservation in a normal healthy state.

Arterial blood is sent to all parts of the body and loses its oxygen which it has obtained in the lungs and takes up a certain amount of carbon, the product of the disintegration of the tissues, [illegible] it returns to the right heart from thence to the lungs [illegible] [illegible] [illegible] [illegible] prepared to take up its [illegible] through the body, laden with

fluid, which forces itself out
in the capillary net work between
the arteries and veins.
To the tissues themselves belongs
the power of taking up their
peculiar constituent elements,
from this circulating medium
and appropriating them to their
use. Thus the power takes up
the organic salts, which give
them their strength and stability.
And the muscular tissue appropriates
the nutritious albumen
of the blood, and the whole
economy is thus nourished from
the great life giving fluid.
It is very highly important

Typhoid Fever

Typhoid Fever is an acute febrile disease, characterized by a thickening and ulceration of Peyer's patches and the solitary glands of the intestine.

Symptoms

The invasion of typhoid fever is more or less gradual, and marked by no characteristic predromal symptoms. The patient usually complains of lassitude, pains in the limbs, disturbed sleep, frontal headache, and noises in the ears, or there may be slight chills, diarrhoea, and sometimes vomiting. General lassitude, epistaxis and a bronchial cough, in the early stage, are considered almost pathognomonic by some authors.

But the symptoms may be so slight and gradual in their onset as to cause no decided inconvenience, the patient continuing his ordinary occupation for several days; while he sometimes walks about during the

entire illness.

Fever soon sets in the temperature which is quite characteristic in typhoid increasing toward evening. The pulse becomes quickened, reaching 100 or 120 beats in the minute, while the tongue generally shows a thin whitish or yellow coating, is pointed, red at the tips and edges, and the papillae are enlarged. The lips are parched and dry, and there is generally much thirst. Diarrhoea usually sets in about this time, and there is also tympanitic swelling of the abdomen, marked to a greater or less extent. There will be pain and tenderness in the right iliac fossa, even gaughing upon pressure. The number of the stools varies considerably; and their character generally changing from the normal, becomes after a

five days, "thin yellow and pultaceous resembling pea soup in appearance"; their odor being exceedingly disagreeable. The stools separate, after standing, into a deposit containing the remains of the food, and a watery layer impregnated with albumen and salts. Bartholow states that micro-organisms of a brownish color are contained in the faeces in great numbers, but that they are also present in benign liquids; while Green affirms that the bacillus seen in typhoid fever is not found in any other disease.

Eruption

The specific eruption of typhoid makes its appearance, usually from the seventh to the twelfth day. It is stated by many authorities that cases of typhoid may occur

in which this eruption does not exist, but I am inclined to the opinion that, in these instances there are a few spots present which might be readily overlooked. The eruption comes on in successive crops, one spot lasting three or four days, and then disappearing. There are but few of the spots present at any given time; the number rarely exceeding twenty or thirty, and there may be but two or three (Roberts). It is most often seen on the abdomen, chest, and back; less frequently on the limbs; scarcely ever on the face. The duration of the rash is about fourteen or fifteen days, generally. It is composed of separate two-colored lenticular spots, elevated a little above the surface of the surrounding mucous membrane,

soft and disappearing on pressure.
The spots are about one or two lines in diameter, having a well defined margin. They never become patechial, and they disappear upon death.

Advanced Stage

Later on the symptoms become aggravated, the patient becoming weaker as the disease progresses. The tongue becomes dry, hard, and probably fissured, and sordes collect upon the gums and teeth.
Abdominal symptoms become intensified, and haemorrhage from the bowels may occur.
About the end of the second week the nervous phenomena become more prominent, the mind becomes confused or delirious (errors), at first of a noisy talkative character,

which may in some cases amount even to mania. Frontal headache ceases about this time, but more or less deafness ensues. The patient becomes indifferent to surrounding objects, and when asked to protrude the tongue forgets to return it.

The pulse becomes weak and perhaps dicrotic, there may be profuse intestinal hæmorrhage; deep ulceration indicated by muscular tremors; or the symptoms of peritonitis may ensue. Sudamina often occur in the later stages. The patient is also liable to the formation of abscesses, and bed sores frequently give trouble.

Temperature

The temperature in typhoid fever is very characteristic. Gradual in its onset

and progress, it continues to rise for four or five days; reaching its maximum, usually about the end of the first week. It rises about two degrees in the evening, and to about one degree the following morning and in the evening again rises about two degrees above the morning temperature; so that there is a daily rise of about one degree.

Professor Wardrop states that during the third week the fever begins to be remittent; and during the fourth intermittent; he also states that it is continuous at its maximum because the daily remissions correspond to the morning and evening variations of the daily temperature in health.

In cases of [illegible] difference takes place by lysis, and in the course of a relation

the temperature again rises in the same gradual and characteristic manner as in the primary attack.

The urine, in an attack of typhoid, contains an excess of urea and uric acid, but the amount of sodium chloride is diminished. The alkalinity of the blood is also said to be very marked in this disease.

The principal varieties of typhoid fever are according to Murchison,

First the mild or the abortive, terminating about this second week.

Second, the grave form, under which may be classified the inflammatory, adynamic, hæmorrhagic, and others.

Third, the insidious or latent forms, also

called ambulatory.

Complications and Sequelae.

Typhoid is apt to be complicated with affections of the respiratory organs, especially hypostatic congestion of the lungs, the result of enfeebled heart action. But the complication most to be feared is perforation of the intestine. The symptoms accompanying this event are intense pain and shock; and if the patient recover from this state, acute peritonitis rapidly follows, death taking place usually about the fourth day. The time at which perforation may be expected to occur is from the third to the fifth week, but it may take place after the patient has recovered sufficiently to be out. Da Costa records a case taking place after seven months.

Complications are most liable to occur in the third week.

Among the sequelae may be mentioned phlegmasia dolens, phthisis, neuralgia, anaemia, mental weakness, temporary paralysis, and a state of general debility. Bartholow also includes fatty degeneration of the heart and Bright's disease. There is apt to be falling out of the hair during convalescence.

The average duration of typhoid is from three to four weeks, but the case may terminate earlier or may be protracted for a considerable time. Death may be caused by exhaustion, haemorrhage, poisoning of the blood, from a lack of proper excretion, or the absorption of septic matter, and by complications.

Anatomical Characters

The characteristic lesions of typhoid fever are found in Peyer's patches and the solitary glands of the intestine.

The mesenteric glands are also affected, especially those in the neighbourhood of the diseased patches. The appearances presented will vary with stage of the disease at time of death. The first change taking place is the enlargement of the glands. This occurs according to Murchison, on the first or second day, according to Trousseau on the fourth or fifth day. The enlargement is believed to consist in an increase in the cellular elements of the tissue caused by the proliferation of previously existing cells. Some observers contend that the glandular

enlargement is preceded by a hyperaemic condition of the mucous membrane around the patches, others assert that there is no previous congestion.

The patches become raised one or two lines above the mucous membrane, become more or less hardened, and present a grayish or pinkish color; in this condition the name plaques dures has been given to them; in contradistinction to those, called plaques molles, which have ruptured and discharged their contents. A return to the normal takes place in many of the follicles; the surplus cells disintegrate and disappear and the hyperaemia subsides. Similar changes usually take place in the solitary glands, though not invariably; and it is said they may be alone affected

Under the influence of the rapid proliferation of the cellular elements of the gland necrosis with softening, and sloughing in the severe cases, takes place. The slough is cast off from the patch, leaving an ulcer of an irregular or somewhat oval shape, varying in extent according to the amount of tissue involved. The edges of the ulcer are formed by the surrounding mucous membrane, and the floor by the submucous, muscular or peritoneal coat of the intestine, according to the depth to which the ulcer has penetrated.

Those formed at the seat of Peyer's patches have their long diameter parallel to that of the intestine, while those involving the solitary glands of the large intestine have their transverse. The stage of ulceration begins

usually about the middle of the second week.

Healing of the ulcers commences generally about the end of the third week; each one taking about two weeks to complete the process, which is accomplished without any constriction of the canal.

These changes first occur in the lower part of the ileum, where they will be found most marked, thence they extend upward, involving as the case may be, from one or two to thirty or forty of the patches.

The mesenteric glands are always enlarged, especially those in connection with the diseased patches. The spleen also becomes increased in size, being at first hardened, but ultimately softening and thinning again to its original size.

Pathology and Causation.

Typhoid fever is a constitutional disorder caused by a specific virus. The nature of this contagion, the manner of its entrance into the system, and the circumstances under which it is propagated, are matters which have for some time been the subject of controversy. As heretofore stated micro-organisms have been discovered in the dejections of the typhoid patient; and to their poisonous influence the disease is supposed to be due. Some pathologists hold that the poison exerts its influence directly upon the intestinal canal, the constitutional disorder being the result of this; others that it acts through the system generally, and that the lesion of the glands is secondary. The weight of authority, as well as the order of the symptoms, would appear to

favor the latter view.

The conditions which seem to promote the development of the typhoid contagium are putrefying animal matter, sewage products, and it has been said recently [illegible]. But sporadic cases sometimes occur when no such conditions are found; and it is often very difficult to trace the disease to its origin. It seems to be proven without doubt that the contagium is present only in the dejections of the typhoid patient; and is not given off in the breath or emanations from his body. But the poison may be conveyed from one person to another by means of various articles which have become contaminated by the excreta. Drinking water is a purified source of the disease

In many instances epidemics have been traced to this source. When the stools of persons suffering from typhoid are thrown out upon the ground or into surface privies they soak through the soil and, under the influence of repeated rains, percolate through, reaching the water of wells and springs in the vicinity, and thus imparting to them their poisonous character. The origin of the disease has been attributed to the use of milk carried in cans which have been washed in such water, and to eating the flesh of animals infected with the disease. Typhoid usually attacks those between fifteen and thirty years of age, and seems of anything rather more prevalent among the better classes.

Diagnosis and Prognosis

From remittent fever typhoid may be distinguished by the absence of vomiting, as a rule, and of sallowness of the skin; and by the presence of abdominal symptoms, and more or less bronchial catarrh.

From typhus it is known by its characteristic eruption, by diarrhoea, tenderness and gurgling in the right iliac fossa, peculiar appearance of the tongue, and by tympanitic swelling of the abdomen. The thermometer also affords valuable aid in the diagnosis of typhoid fever.

A guarded prognosis must be given in all cases of typhoid fever. Perforation of the bowel may occur at any time from the first week until late in convalescence. During the second week the thermometer gives valuable

information as to the gravity of the case; the higher the temperature, contemporaneous, the severer the case is likely to be. The prognosis is more unfavorable during an epidemic and in those of an advanced age.

Treatment

In the treatment of typhoid fever hygiene is of the utmost importance. The patient should be put to bed in a well ventilated apartment; and the excreta properly removed and disinfected, lest others should become infected through their agency. The water supply should be looked to and every precaution taken to prevent the spread of the disease.

From the first the food should be entirely liquid, sufficiently nutritious, but easily digested and not irritating in

character. Milk forms an excellent article of diet; if the stomach should not bear it well a little lime water may added. Toast-water, barley-water, or mucilaginous drinks with tea or coffee may also be given. Later on beef tea, and beef juice will generally be required, especially in protracted cases. It is important that the food be given at regular intervals. In the latter stages alcoholic stimulants may be necessary generally not until then, and in many cases not at all; when employed great care should be exercised in their administration. A weak fluttery acting heart, with a hot dry skin and symptoms of exhaustion are the indications for their use; but should no improvement ensue they must then be

with no one.

Typhoid fever is a self-limited disease for which there is no specific treatment. As far as the disease is itself concerned medicines seem of little avail and the treatment must be directed principally to the symptoms. Nevertheless various special remedies have been advocated; some authors recommending carbolic acid and the sulpho-carbolates, others mercury and iodine.

Bartholow thinks that large doses of calomel, ten grains at a dose, on alternate days, favorably modify the disease. He says its effect is to lessen the temperature, lessen the severity, and apparently shorten the duration of the disease. Liebermeister [illegible] the [illegible] under the mercury and iodine treatment.

as compared with the ordinary, is as follows: under ordinary treatment 13.2 per cent; under the creosote treatment 6.1 per cent; under the iodine treatment 10.9 per cent.

In the great majority of cases it is the temperature that calls for the most active interference in this disease. When this is very high the cold bath may be employed; immersing the patient in a bath at 95°, and gradually lowering the temperature of the water, until the desired effect is produced. The patient should not be allowed to remain in the bath more than ten or fifteen minutes at a time. Sponging the skin with cold or tepid water will often be found to be of much service, and is usually more convenient than the bath, and attended

with less danger, especially where there is much weakness of the heart's action with a tendency to syncope.

Tinctura is also used by some practitioners, in antipyretic doses.

In the early stages if the fever be high, small doses of ireac or spiritus mendereri may be given. If the abdominal symptoms be severe warm fomentations or poultices may be applied, and opium may be given by the mouth or hypodermically. It has also been recommended in the young and plethoric to apply leeches over the iliac fossa. Unless the diarrhoea amount to more than three or four stools per day it should not be checked, except they be copious or the patient be very weak. If the diarrhoea

be excessive it may usually be controlled by the use of opium, either with starch-water as an enema, or in the form ~~in the form~~ of Dover's powder, alone, or combined with bismuth. If these do not suffice one of the mineral astringents may be employed. Tympanites may be relieved by enemata containing turpentine or asafoetida, and by the use of hot applications to the abdomen. Haemorrhage from the intestines may yield to the remedies mentioned for diarrhoea, if not recourse must be had to tannic acid, turpentine, or better ergot hypodermically, with the free use of ice.

Should perforation occur the patient must be kept absolutely quiet, and opium freely administered. During the latter stages the strength of the patient must be kept up by

nourishing diet and stimulants if necessary, and a careful watch maintained for any complications that may arise.

During the stage of convalescence, when the tongue becomes red and dry or glazed turpentine does good service. It may be given alone in mucilage or in combination with bicarbonate, in the dose of not more than 10 drops three or four times a day. Attention should be paid to the state of the bladder, lest retention of the urine with overflow occur.

During convalescence the greatest care must be exercised in regard to the diet, always bearing in mind that perforation may occur at any time, even after the patient has apparently recovered.

The various complications and

sequelæ must receive appropriate treatment as they arise.

Chas. H. Janney.

The Blood and its Circulation.

B. Merrill R. Hopkinson D.D.S.

Baltimore Jany. 1. 1885

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"The Blood and its Circulation."

In choosing a subject for a Thesis which will go into the archives of our Blood Alma Mater, we are very apt to take one, which is, if not most interesting, at least very interesting to us. The one to me, is a subject fraught with interest in the highest degree, and one which manifests true, the wonderful workings of the Almighty, Who only, doeth all things well. Our learned and most respected Professor of Physiology has given us most thorough instruction upon all which pertains to the blood and its circulation, and it will be my aim, in this Paper to go back to the universities some of the knowledge I have gained during my course of Study within his honored walls.
I shall not go into the subject of how the blood is produced for in so doing I should be obliged to treat of alimentation, secretion, digestion, &c;

I will begin with the food already made by the various and wonderful life processes, and start with it in the heart, the great engine or central organ of circulation, the rythmic contractions of which, enable all parts of our bodies to be properly nourished. I think it best however, first to consider the circulation in connection with the circulatory apparatus, beginning with the heart. then consider the influence of the nervous system on the circulation, and finish with the blood which is carried through the apparatus. The heart is placed obliquely in the chest, its axis being directed forwards and to the left. between the 5th and 6th ribs and about 3 inches from the sternum. I'd enter into anything like a correct anatomical description of this organ, would of course be quite useless, as I am not myself

with saying that it is composed of striated muscles, which fact ~~sarcolemma~~ thus differing in the heart from striated muscles in other parts of the body, in being entirely involuntary. It is divided into four cavities, an auricle and a ventricle for each side, each auricle-ventricular opening being guarded by valves, the tricuspid and mitral, which prevent regurgitation of blood from the ventricles into the auricles. The heart has an internal lining membrane which is serous, and is called the Endocardium, and an external investing membrane the Pericardium the latter being a fibro-serous membrane. In following the circulation, it is as well to start with the blood in the right side of the heart to which it is carried by the veins coming from all parts of our body. By the contraction of the

right auricle it is poured into the right ventricle; but, under normal conditions the auricles do not empty their contents into the ventricles, they only expand them, the blood regurgitating into the vessels which open into the auricles, these vessels not being supplied with valves. The right ventricle having received its full supply of blood it contracts and drives the blood on into the pulmonary artery transmitting into the auricle being prevented by the closure of the tricuspid valve. The right ventricle having forcibly driven the blood onward into the already filled artery, it by virtue of its elastic and muscular coats also contracts, and drives the blood onward towards the lungs, the semilunar valves guarding the passage between the ventricle and artery. The pulmonary artery breaks up into small branches, finally terminating in minute

capillaries which distribute the blood to all parts of the lungs, where, by the process of respiration, Carbon Di-oxide is eliminated and the blood becomes oxygenated, other changes as well taking place of which I will speak later; enhancing and making it ready for the circulation to all parts of the body, to carry on the nutritive processes. It is necessary however that the blood should be first carried back to the heart, the great engine of circulation, so that it may be propelled into the arteries and thence onward in its proper channels.
The capillaries of the pulmonary artery finally inosculate with the capillaries of the pulmonary vein, which vein, carry the blood onward to the left side of the heart.
Here we have an instance of vein without valves, and vein also which carry arterial blood.

On the right side of the heart we had an instance of an Artery, the pulmonary, carrying venous blood. The circulation so far as I have briefly described it, is known as the shorter or pulmonary circulation. I will now pass on to a brief consideration of the greater or systemic circulation. The blood having been carried into the left auricle, it contracts, pouring the now oxygenated fluid into the left ventricle, which also immediately contracts so soon as it has been expanded, forcing the blood into the great aorta, which is already somewhat expanded from the last hearts systole. The auriculo-ventricular opening is carefully guarded by the mitral valves, which prevent regurgitation in the same manner as do the the tricuspid valves on the right side. These auriculo-ventricular valves, are formed by duplicatures of

the inner membrane of the heart. I will mention here that the arteries throughout the body are all over full of blood, caused by the impediment offered by the capillary system, and it is by virtue of this condition, the heart acting as a force pump to keep them so, that the circulation is carried on. On the other hand the veins are all under full, if I may so express it, and if the experiment could be tried, the veins of a body, would, almost without doubt, be quite able to contain all the blood in a given body, leaving the arteries quite empty. The arteries are firm, cylindrical and elastic canals, composed of three coats, an external, areolo-fibrous, a middle, muscular, and an internal, a thin diaphanous, serous coat. They have no valves save at their origin. As these canals are very elastic, always over full of blood,

and has the force of the heart from behind, the blood is driven on through the aorta into the larger arteries, thence into the branches, the arterioles, and finally into the minute Capillaries. The circulation through the arterioles and Capillaries is most interesting. I will speak now only of the Capillaries, leaving the arterioles until I speak of the influence of the nervous system upon the circulation. The structure of the Capillaries differs greatly from that of the arteries. They are composed only of the intima, having no muscular structure over their walls, and are made up of living cells placed edge to edge, and very closely applied to the tissues which they supply. The Capillaries have no inherent power of contraction, and thus the circulation cannot be carried on by any power they may possess, but it is induced by the force of the heart,

the great elasticity and contractility of the arteries, as well as the elasticity of the surrounding tissues, and a certain amount of suction produced by the under full veins ever decreasing in extent of surface over which they traverse, and correspondingly increasing the force and velocity of the motion of the blood, towards the heart. In a like manner we have the converse side or reverse this movement of the circulation, for as the blood extends from the arteries into smaller and smaller branches, then into the arterioles and capillaries, ever increasing the area of its course, the circulation becomes slower and slower, like a great river, which in its passage through a narrow mountain pass rushes on swiftly, but when coming to the broader parts of the stream, it creeps out

into a broad estuary, and what was once a mighty torrent, is now a placid quiet stream, which will again rush on with great swiftness, when it meets with resistance from an ever narrowing passage on its course. How beautifully this is ordered by the wise Command of the Almighty. The arterial blood, sent forth and ordered to nourish us, is spread out over the whole surface of our body, and moves slowly along, when it becomes necessary for it to remain that which is needful for our well being as well as to carry off that which is harmful to us; when however having accomplished its purpose it begins to move faster and faster hurrying on towards the heart that it may be again distributed to the limbs there to remain with the portion it has gathered and once more be purified and made fit for our sustenance. The arterial

Capillaries anastomose with the veins
Capillaries then, these become veins,
increasing gradually in size as they proceed
towards the heart. The veins have a condition
quite different from that which obtains in
the arteries. The veins are all supplied with
valves which prevent a backward flow of
the blood. I have said that the veins were
all under full, and if it were not for these
valves the blood would be constantly sucking
away from the heart the force must
effectually prevented by their presence.
These valves are more numerous in the veins
of the lower extremities, and for obvious reasons.
The veins have also three coats, which differ
from the coats of the arteries in many ways; and
by the folding or duplicature of the internal coat
the valves are formed. The veins have little power

it themselves to contract, the muscular exertion of the body having a vast deal to do with the venous circulation, and the aspiration or sucking of the thoracic cavity, as found in the process of inspiration, also assisting in the circulation. Having seen the same increase in size as the blood towards the heart, it only remains for me, in concluding this brief description of the circulation, to say that they finally end in the Ascending and Descending Vena Cavæ which empty into the right auricle. Thus the life process ever goes on, steadily and unceasingly; whether we be waking or sleeping, from the moment we are ushered weak and helpless into this world, until we shall have lived our allotted time upon the Earth, and are ready to lie down in our last long sleep; and even after we have begun our final rest, the heart continues to beat, as though fighting

against the stern mandate of that silent visitor, Death.

Let us now briefly consider the nervous influence governing the circulatory apparatus. I will first speak of the pneumogastric, vague, or the inhibitory nerve of the heart. In the case of ordinary muscular fibre, when we stimulate the nerve going to them, we cause contraction of the muscle, but in the case of the vagus, if we stimulate it, we put the heart in a state of diastole; in other words, we cause it to cease contracting, or inhibit its beat. This inhibition may be brought about in other ways Ex. gr., by increased intracranial pressure, or in any way by which the nerve centre of the vagus may receive an apparent impulse; and then are many ways as this nerve has such a wide distribution; or indeed it may be reflex through

other nerve centres, by reflex action, notably the sympathetic system. This inhibition is most instructive to us in cases of disease of the heart. Everyone knows who has experienced a sudden shock, either from grief or joy, how after several sudden beats the heart seems to stop, and a dreadful sense of oppression comes over us, with a feeling as if of approaching death. This is due to the action of the vagus which draws in the reins as it were, when the heart palpitates violently from the shock, and inhibits its rapid and unnatural beating. Then the oppression ceases and the heart returns to its normal condition, by the letting go so to speak, of the influence of this nerve. Now, when there is some organic disease of the heart, and a person so afflicted receives a violent shock awake, or in some terrible dream, may it not

to the vagus which produces death, by drawing in the veins and holding them so fast and so long, that the heart is unable to commence its rythmic contractions again? I think there is good ground for the theory, and in many of the cases of blood found dead in bed, in many of them sean, this inhibition of the vagus was from the cause of discoloration. There resides in the muscular structure of the heart the power to contract rythmically, in virtue of nerve ganglia contained therein. This is beautifully shown by removing the heart of a frog from its body, and it will be seen that it will contract rythmically for some time, without the presence of blood; and should it cease it can be made to resume its contractions, by a sudden prick from a needle, or by placing upon it the salts of the blood, dissolved in water

I have spoken of the arterioles, or transition vessels as they are sometimes called, between the arteries and capillaries. To them are distributed a most interesting set of nerves, known as Vaso-motor nerves, which belong to the cerebro-spinal system. Vaso-motor nerves may be divided into two classes, vaso-dilator and vaso-constrictor nerves. Two may be produced in two kinds of dilation, viz: by stimulating a dilator fibre, or by cutting off constrictor influence. By stimulating a constrictor fibre, contraction of the vessel is induced. In normal conditions the arterioles are kept in a state of middle contraction and dilation, which is known as the tone of the vessel, by the distribution to them of the vaso-motor nerves, and through the ganglia which the vessel itself contains. The influence of these nerves upon the circulation

is shown in many beautiful ways, and the day will come, when, after more research, and a better understanding of this subject, we will be able to exercise a better control over certain affections, which seem to influence, or be influenced, more or less by this vaso-motor system.

Having seen the blood circulate, and what causes it to flow so beautifully through our bodies, as well as having briefly considered the nerves which exert a certain influence over the circulation; I must now in order to complete my subject, take up for consideration the blood itself, and I will speak only of it from a Physiological point of view, and as it may be found in the full vigor and strength of perfect manhood.

The blood is the fluid which circulates through

Every part of our bodies, save in Epithelial tissue, acquires important properties during the process of respiration, the source of all nutrition, as well as secretion; and is the organ for our bodies as well. It may be divided into arterial and venous, the names denoting the channels, with few exceptions, through which it is carried. As I began with the circulation in the right side of the heart, let us follow the blood from the same point and see what important properties are acquired as it passes through the lungs. The most obvious change, is the dark crimson of venous blood being changed to the bright scarlet of arterial blood. This change in color is indeed of little importance, except in so far as it indicates other and more essential alterations effected in the composition of the blood.

Of these the principal are; in the temperature, the blood being 1° 2° warmer after passing through the lungs: the fact that it will coagulate sooner and more firmly, for apparently containing more of the elements which go to make up fibrin: and lastly, the great change of containing a new supply of oxygen, the carbon di-oxide (and nitrogen) in great part having been eliminated. Eliminative processes are carried on of course in other organs, but I will not speak of others, than those already mentioned above in the lungs. Whenever blood can be seen circulating in a living part, under the microscope, it will be found that it is a colorless fluid, containing minute particles, the greater part of which are red, and thus give the blood its color as seen by the naked eye. Blood is composed of

plasma, red and white corpuscles. It has an alkaline reaction, becoming acid when drawn. The plasma, or fluid portion, is composed of fibrinogen, paraglobulin, albumin, water, and salts. This is the nutritious part of the blood, and constantly transudes from the walls of the vessels in fact, the whole body is literally soaked in the plasma of the blood. The red corpuscles are bi-concave in form, are composed of a stroma, and a coloring matter, the haemoglobin, which may readily be extracted. These corpuscles have not always the same condition; they may assume different forms, such as stellate or mulberry forms. They are very elastic and float freely in the plasma, they live a very short life, new ones are constantly forming; indeed the blood is the tissue which is made the quickest, in a state

of health. The haemoglobin consists of O. H. N. C. and Fe. It has great power to take oxygen to itself, and loose it readily by its affinity for carbon di. oxide. In life and health the stroma holds the haemoglobin, but in disease, ex. gr., a person whose condition is spanaemic, it leaves the stroma, thus a person suffering from spanaemia, may not have a lack of corpuscles, but a lack of the coloring matter which they should contain. The white corpuscles of the blood are irregular shaped, they also float in the plasma, but they also have amoeboid power of movement, which the red corpuscles do not possess. They are quite sticky, have several nuclei, and will be found in the current near the walls of the vessels, moving very sluggishly while the red corpuscles move along rapidly in the middle

of the stream. The number of white as compared to red corpuscles is about 1 to 350, this condition being subject to great variations, as in the blood the proportion is about 1 to 60 and in certain forms of disease, e.g. leucocythaemia, the red and white corpuscles are about equal in number. The white corpuscles are real, living, undifferentiated protoplasm, and are great tissue makers. Blood being drawn divides into clot and serum. The clot or crassamentum is composed of corpuscles fibrinogen, paraglobulin and a ferment. The corpuscles are in the clot only by accident, and they have nothing whatever to do with coagulation. Very little is known regarding the ferment, although there is a theory, that it is supplied by those most interesting and curious leucocytes. The red color of the clot can be washed entirely out, leaving only

the fibrin, which does not exist as fibrin in the blood, but as fibrinogen and paraglobulin, and these when the ferment is present, form fibrin. The serum is composed of albumin, part of the paraglobulin, water, and salts; is the plasma of the blood, minus the red corpuscles, fibrinogen, and part of the paraglobulin, thus it contains all the elements of nutrition. Clot and serum do not separate immediately, but after standing for some hours, the clot will contract and squeeze out all the serum, in which it will freely float. This process of coagulation never takes place within the walls of a healthy blood vessel. Coagulation can be retarded by application of cold, it can likewise be hastened by application of warmth; rest and free access to the air, are perhaps of all external conditions, most favorable to coagulation. Two acids in the power to coagulate, one of the most vital properties of the blood, and were this property absent, how great

would be the mortality in cases, where injuries being
recieved, through slight, the life of the poor injured
one would ebb slowly away, for the abstraction, drop
by drop of that vital fluid, which is so necessary
and which constantly nourishes us through our lives
Again we see the omnipotent hand wisely ordering all
things. I will here close my paper, but I feel as
though I had traced my subject in a most
puerile manner, it is so vast and wonderful.
I have endeavored to sketch however of the most
important properties of the blood, and the
phenomena of the circulation, and I fear my
readers have long since been tired out. My study
will not end with my thesis, but will continue as
long as that vital fluid shall circulate in my
frame, and give my body and mind the requisite power to
carry on the great life work, and enable me to delve deeper
into the hidden mysteries of my noble profession.

D. Merrill R. Hopkinson

Aug. 1. 1885.

bacillus has been found in the affected [illegible]
ches. the Mesentery Spleen Kidneys & Lumen of [illegible]
[illegible] even in some cases in the urine [illegible]
invariable in the faces — the bacillus has been
[illegible] success [illegible], [illegible] has failed [illegible]
should be considered due to the [illegible]
animals that we know of are [illegible]
any disease similar to Typhoid Fever [illegible]
organisms originate from the decomposition of
[illegible] matter and Typhoid stools or [illegible]
[illegible] such merely as a culture soil [illegible]
is [illegible] a much settled
facts, then give us a specific poison as
Exciting Cause of the disease — the [illegible]
system by such means has been [illegible]
[illegible] analogous to the sowing of seed [illegible]
[illegible] the seed to be sown i.e. the [illegible]
[illegible] described and [illegible]
[illegible] is to be sown. This necessarily
[illegible] use to [illegible] which [illegible]
briefly enumerated as Age, Season [illegible]
[illegible] Susceptibility — [illegible]

The occurrence of the disease its identif... fies more commonly during the period of youth & adolescence than in infants and individuals attaining the age of 40 or 50. Half the cases oc[curring] is stated between the ages of fifteen and twenty-f[ive].

2nd More frequently occurs during Autumn and after a hot and dry season -

3rd A person recently coming into an infected [illegible] is more liable than old residents, [illegible] persons who to state their own homely [illegible] fever every time it comes around."

[illegible] is [illegible] of life do [illegible] not [illegible] effect. Various chronic [illegible] and the existence of pregnancy are said to [illegible] protects from [illegible] occurrence of the malady in the [illegible] lead me to believe that one [illegible] not predispose to another at least [illegible] epidemic [illegible].

Mode of [illegible] Various theories have been [illegible] as to the manner in which [illegible] [illegible] and

...rance into the system - The most common
...ll modes is undoubtedly through the [illegible] water
in the infected district becoming contamin...
...ated from the excreta of typhoid patients
[illegible] [illegible] [illegible], by the Saprophytes
or their spores - Emanations from typhoid
are supposed to carry the poison to a [illegible]
...ted extent through the air - That milk
...ct as a carrier of the contagium is [illegible]
...shown by epidemics of the disease being
traced to this source [illegible] [illegible] in [illegible]
milk was in all probability contaminated by
[illegible] used in [illegible] the containing vessels or
in the adulteration of the milk itself. Some
inclined to [illegible] that milk while warm acts
culture fluid in which the germs multiply
...ly. Be this as it may we still [illegible]
[illegible] as the great disseminator of the [illegible]
[illegible]. Supply, [illegible]
Clinical [illegible] - [illegible] the [illegible]
[illegible] [illegible] consists in certain [illegible]
[illegible]

[illegible] of the Post Mortem appearance
after [illegible] briefly to the general condition
[illegible] alimentary canal speak more [illegible]
[illegible] of these particular processes referring
cursorily to others of subordinate interest
Post Mortem examination ~~[illegible]~~ reveals:—
[illegible] or less emaciation commensurate with the
[illegible] and severity of the attack; Rigor
while not of long duration distinctly marked;
[illegible] or rapid putrefaction, excessive post mortem
[illegible] and dark color will distinguish
Typhus. The eruption is not persistent after
Any complications present their own characteristic
anatomical lesions. The general condition of the
[illegible] and ~~[illegible]~~ hypodermic. Swelling and [illegible]
[illegible] when found to Post mortem changes.
The condition of Peyers Patches and solitary glands
[illegible] accordingly to stage the morbid [illegible]
[illegible] reached.

Morbid Changes in Peyers Patches. These may be [illegible]
into four stages. First stage of Deposition or Embryonic
[illegible] stage of destruction Third stage of Necrosis
[illegible] Stage of Cicitrization

Stage of destruction

2nd In rare instances [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] of surface [illegible] [illegible] rupture and discharge their contents ~~[illegible]~~ a rule through the Peyers Patch die and goes on etc.—

3rd Stage of Ulceration. The sloughing gen occurs in different parts of the patch [illegible] extension of points of ulceration the [illegible] patch may become one large ulcer.)

[illegible] [illegible] [illegible] [illegible] of a [illegible]

A smooth base formed by the submucous or [illegible] [illegible] of the intestine, Edge thin and [illegible] mined consisting of a fringe of mucous [illegible] [illegible] [illegible] shown by [illegible] [illegible] [illegible]

4th Cicatrization - is [illegible] [illegible] by the [illegible] [illegible] (surrounding, union of the [illegible] [illegible] with the base and formation [illegible] [illegible] [illegible] [illegible] commences at [illegible] [illegible] - The gland structure is never [illegible] [illegible]. No diminution in the calibre of the [illegible] [illegible] takes place.

rupture or ulcerate.
The Spleen is almost invariably enla[illegible]
[illegible] and dark in color with an [illegible]
crease of Lymphatic elements. If recov[illegible]
ensue these new elements are absorbed, g[illegible]
[illegible] and the organ returns to its norma[illegible]
condition. The Liver is occasionally c[illegible]
ted or softened and the gall bladder in [illegible]
instances may be catarrhally inflamed or [illegible]
ulcerated. The ordinary signs of Peritone[illegible]
will be [illegible] post mortem if perforation
[illegible]. Kidneys may be congested and
tubes loaded with detached epithelium
[illegible] special is noticed in the blood
circulatory system except that the blood
[illegible] and fluid and the heart may be
[illegible]. No particular alterations [illegible]
[illegible] system except that an unusual
[illegible] may be found in the brain
[illegible] of description ~~various~~ the course
[illegible] has been divided into various p[illegible]
~~[illegible] of the disease [illegible]~~
[illegible] different writers — The fol[illegible]

... for some time - Such are the symp... accompanying the invasion of the disease - Be... established the following train of symptoms are served during the first week or ten days... is in the:—

Early Stage — A certain degree of depre... ... its prostration is felt - There is peculiarity of expression at this time except that th... ... be a pink circumscribed blush on the ... The skin is hot and dry usually but may ... - Pyrexia increases the temperature ~~in a fractain~~ ... in a peculiar ... to be noted in discrim...

... 100 to 120 somewhat weak and soft, ... variable being more rapid at night. The ... is at first moist with a thin whitish or ... ish ... red at the ... ~~in moist at~~ first and edges with en... ... Exceptionally thick and heavily coated ... red smooth and glazed - The lips are dry and ... the mouth feels slimy. There is much thirst ... ... frequently nausea and vomit... Abdominal symptoms which are the most pa... ... are prominent in proportion ...

ity of the case and consist of pain and ten
ss especially in the right [illegible] fossae where
ing may be produced by pressure or manipulation
or less tympanitic distension and diarrhoea.
Physical Examination the Spleen ~~[illegible]~~ is felt to be en
d - The diarrhoea varies in different cases
number of stools ranging from two or three
to two or three and twenty in 24 hrs, ~~[illegible]~~
3 to six in ordinary cases - The discharges at
present no peculiarities but soon become char
istic thin yellow somewhat resembling, a
very offensive and often ammoniacal
alkaline reaction They contain salts of ammon
sodium albumen remains of food [illegible]
and shreds of sloughs mucous corpuscles
and triple phosphate.
symptoms are not very marked during
stage the headache dizziness and buzzing
in ears persists. The sleep is disturbed the
id is clear but inactive and there is no
n not even at night Epistaxis is of frequent
[illegible] There may be [illegible]

A specific eruption is present in a majority
cases but not invariably and when present is
common. It is most often absent in very
subjects and in persons over 30. The eruption first
appears from the 7 to the 12 day but has shown
as early as the fourth day and has been delay
as late as the twentieth. It appears by preference
the abdomen back and chest, occasionally on the
rarely if ever upon the face. The eruption appears
crops each spot lasting from 2 to 5 days. The num
of spots present at one time rarely exceeds from
to 30, often but 2 or 3 there are. These spots
from one to two lines in diameter are of cu
or lenticular shape slightly elevated with
well defined margin and are soft to the [illegible],
[illegible] on pressure slowly returning after it is w
They do not persist after death. Colon

Advanced Stage All the symptoms before d
continue may continue without particular
until convalescence begins, the tongue remains
~~moist and~~ throughout and not marked prost
[illegible] but as a rule the patient emaci

...ex much weaker sometimes very much protracted
...ace becomes more flushed, the conjunctiva may be ...
and the pupil dilated. The tongue tends to become
and brown or red ~~and~~ shining & deeply fissured ...
...s collect on the ... The breath ...
...sive ~~odor~~ odor. There is no diminution in the abdomen...
...ptoms which are more often intensified and ...
...ge from the ... is ... occur
Spleen continues to enlarge and soften. There is a
...ked change in the nervous symptoms. The head...
... and general ... but there is more ...
...ss and a certain amount of deafness is observ...
... The mind becomes affected as exhibited by
...olence mental confusion and delirium. The ...
...ist occurs only nocturnally but may continue
...g the day. Generally there is ... by ...
delirium at night which is of an ...
... talkative violent character ...
... in an apathetic state. Fall ...
...otrude his tongue. Slowly he does so ...
...t for an indefinite time ... seemingly
...t ... it. Epistaxis is common ...

[illegible] in the 3rd or 4th week [illegible] in parts pressed upon - Respiration be[illegible] hurried and shallow and marked signs of br[illegible] exist. [illegible] Typhoid Fever ends in recovery a[illegible] subsidence and amelioration of symptoms is observe[illegible] convalescence taking place by Lysis not by cris[illegible] Convalescence makes [illegible] [illegible] ed by relapses as well as the various complica[illegible] and sequelae -

Temperature - [illegible] temperature of Typhoid Fever [illegible] [illegible]tristic. [illegible] ascent is quite regular and [illegible] continue for 4 or 5 days until the maximum reached. The evening temperature is about 2° [illegible] than that of the same morning and there is a [illegible] sion of 1° each morning as compared [illegible] of the preceding evening so that the rise of temperature amounts to about one [illegible] - till at last the evening temperature rea[illegible] height of from 103.5° to 106°. The [illegible] of the stationary period varies according [illegible] severity of the attack. During this time there [illegible] night morning remission - The decline is

...ition being first indicated by a more marked
...ing remission. In a few days the evening temperature
... falls and the morning remission becomes very
...derable even as much as 2° or 3°. The ...
...e until the evening temperature has fallen to nor...
... is variable. Complications and sequelae not unpre...
...ily lead to irregularities in this direction.
...ain Varieties of Typhoid Fever are determined ...
... in the main upon severity or prominence of cer...
... symptoms. 1st Mild ~~variety~~ including the
...tive variety of some writers. 2nd Grave ~~...~~
...d into Inflammatory Abdominal Hemorrhagic ...
... predominance of the symptoms which ...
... indicate. 3rd Insidious or latent form also
...mmated Ambulatory as the patient frequently
...s ~~about~~ during the entire attack. In this
... the first serious symptom is very frequently
...ation causing sudden death. As the ...
... of all these forms in conducted on the ...
...al principles further consider at ...
...
...ction & Termination. The duration of the

and villi of the intestines.

Treatment. That there is no specific for Typh
Fever has been abundantly proved by the f
of all who have tried so called specific Wea
Several modes of specific treatment have
advocated - Antiseptic ~~treatment~~, Hydropa
and Eliminatory treatment - Experience howe
has shown that a purely expectant an
[illegible] symptomatic treatment combined with proper
genic precautions are far more effective
all the fancy methods of treatment ever d
by [illegible] for [illegible] -

Hygienic Precautions - All general sanitary
tions are of great value, cleanliness proper
[illegible] and nursing, but above all
cutting off of the supposed infected nat
careful disinfection and removal of all
[illegible] and indeed of filth of all kinds -
[illegible] exception the patient should be
to bed and kept there until fairly conv
Sick - The greatest care should be exc
in [illegible] [illegible] [illegible] [illegible]

[illegible] liquid nourishment being employed at
[illegible] intervals and not too frequently. Pro[illegible]
[illegible] milk is the best. Rice tea arrowroot and
[illegible]ards, toast water, [illegible] ~~[illegible]~~ barley water
[illegible] mucilaginous liquids are beneficial. Fruits are
to be thought of. These dietary cautions must
[illegible]served in all cases and [illegible] if there is a sus-
[illegible] of extensive ulceration. Many cases may be
[illegible] through by these means alone without
[illegible] medication whatever. As alcoholic stimu-
[illegible] are often required as food it may be as well
[illegible] the subject in this connection. The [illegible]
[illegible] held against them by some ~~is [illegible] that~~ no doubt arises
[illegible]ects that [illegible] produced by ~~[illegible]~~ [illegible]
[illegible]nt use of the same. Indiscriminately used they are
[illegible]estionable value. Again they are not [illegible]
[illegible] in advanced stages when ~~the~~ strength [illegible]
[illegible] and the circulation weakened they are
[illegible]ly indicated. Even excessive alteration is
[illegible]ganied by weakness. A circulation [illegible]
[illegible]ndiac failure is a [illegible]
[illegible] employment. [illegible]

ul tions be carefully ~~watched~~ observed. Excessive
ature ~~of malarial~~ is to be combated by quinine in
doses cold baths and other antipyretic m
ures but the popular idea that quinine
always called for in general principles is ca
by erroneous. Mineral acids and other refr
are by many held in high repute but all
called for. Although Calomel has fallen in t
repute small alterative doses in the ear
stages are to considered of great value.
Vigorous antiphlogistics by general blood lettin
immense doses of Calomel as formerly prac
is not only devoid of benefit but abso
injurious. Abdominal symptoms must be
as they arise. A tendency to much pain
Hypogastric is to be combated by the care
and judicious application of heat and mo
to the surface of the abdomen by means
seed meal poultices and fomentations a
best of all by Turpentine stupes. Leeches a
vesicles have been used in young and
subjects with excellent results. Ohmm

[illegible] may be required for the relief of pain
well as to produce sleep and abate nervous
[illegible]ptoms. If there [illegible] more than three
[illegible] daily it is advisable to [illegible] the diarrhoea
[illegible] If however it is excessive enemata of starch
[illegible] opium may be employed. Opium in combi-
[illegible] with bismuth by the mouth is quite a
[illegible] preparation. Dover powder alone or
combination with Bismuth, or chalk mixture
[illegible] Bismuth with tinct Opii and vegetable
[illegible] may be employed. Rarely obstinate
[illegible] may require Acetate of Lead Sulphate of
[illegible] or Nitrate of Silver. In those cases at
[illegible] with constipation aperients must be used with
[illegible] care, for diarrhoea once established may quickly
[illegible] troublesome. A Teaspoonful of Castor Oil or a
[illegible] enema every third or fourth day are re-
[illegible]mended. Excessive Tympanites will [illegible]
addition to external applications may [illegible]
[illegible]mata containing turpentine or turpentine
[illegible] passage of a long [illegible]
[illegible] tube into the rectum [illegible]

If intestinal hemorrhage is not controlled by remedies ordinarily ~~required~~ recommended for diarrhoea fu[illegible] doses of Tannin & Gallic acid Tincture of Iron or [illegible] are called for. In fact Turpentine is [illegible] the value of which in Typhoid fever is [illegible] sight of. Ergotin hypodermically has be[illegible] [illegible] of good results [illegible] may [illegible] to [illegible] [illegible] may be applied to the Caecal region. If the coating of the tongue [illegible] in patches turpentine in XXgtt. doses [illegible] [illegible] for a day or such a matter is indica[illegible] Should perforation of Peritonitis ensue all [illegible] should be withdrawn or given in minute [illegible] [illegible] - Absolute rest must be insured and administered [illegible] either by the mouth [illegible] [illegible] even to the verge of narcos[illegible] T[illegible] other complications as well as sequela[illegible] [illegible] treated according to their own therapeutic [illegible] [illegible] - Epistaxis may require local sty[illegible] or plugging of the nares - [illegible] must be ex[illegible] during convalescence especially in regard and the employment of purgatives -

it must be gradually improved and nourishment taken in moderate quantities. It is necessary to insist especially on this for patients are often much inclined to in excess not understanding why they should be restricted - Tonics and change of air are beneficial, Cod liver oil and Wine if properly used are great value. If an aperient is required a small [illegible] of castor oil or a simple enema should be [illegible] during the entire course of treatment it [illegible] be borne in mind that we are dealing [illegible] a disease which must run a certain course [illegible] too much interference may be [illegible] to the patients safety than entire neglect.

Physician treating a case of Typhoid Fever [illegible] well likened to "The Pilot of a vessel [illegible] storm, He can not hold the elements in [illegible] or still the [illegible] by the [illegible] of his knowledge and judgement [illegible] the bark safely into the haven"

Yours [illegible]

[illegible]

deformities & swiss.

Causes.— Rachitis is a disease of infant or childhood life, commencing in most cases between the ages of six months, and two years. It may, and does occur, at times, earlier, as well as at a later periods. Any part of the spine may be visited by it, but more often it occurs in those parts of a cold and moist climate, as in England, and nearly the whole of Europe, while in this country it is more infrequent. Apartments, and alleys of Cities, of a cold, damp, dark and illventilated atmosphere, are places where it more frequently occurs, than in the dry, well ventilated and any country places. Localities shut out from the Sun's

the name of osteo-malacia, and which, by some, is claimed to be one and the same disease, except with regard to age. From my limited practical experience upon the subject, I am not able to say positively as to the certainty of such, but am inclined to think that they are not identical, but that they are distinct diseases. In rachitis the lime salts are not only absorbed, but the process of deposition is arrested. In osteo-malacia, the same thing takes place, but the process of absorption goes on more rapidly, and to a greater extent.

The causes of the two diseases being

about the same, however, presents strong evidence of their similarity. It is a disease entirely distinct from that of scrofula.

The rachitic are not likely to become scrofula, neither is the scrofula likely to become rachitic.

One effected with scrofula, has, as a general thing, a well shaped body, tall and slender, is of a light fair complexion, and has arrived at the age of advanced childhood, or adult life. While the rachitic are of a blunt stature, with more or less deformity, and are yet in their infancy. Tuberculosis often accompanies scrofula, but seldom

occurs with rachitis. I can imagine, however, how readily they may become tuberculous, as the predisposing causes to it are not altogether wanting, but are often many, and severe.

Parents of a tubercular, syphilitic, or some like diathesis, are more likely to give birth to a rachitic child, than those in a healthy condition. The Mother is more apt to entail such a predisposition than the father. A father very much reduced in health constitutionally, together with an advanced age, however is a very important factor. Mothers, likewise

without any actual disease, but without good nourishing food, and who has been overworked, may very likely give birth to such children, as nourishment is the principle cause, both before, and after birth.

After birth, the aliments taken are not sufficiently nutrient, or they are not adapted to the digestive powers of the organs of the child. It is not necessarily, therefore, the kind, or a particular ingredient of the food, but the quality, and quantity used, suitable to the organs of digestion.

This, I think, aided by improper hygiene, is the most influential cause

of the many that are spoken of as bringing it on. If not directly, it does indirectly, by exciting some waisting or depressing eruptive fever, as intestinal catarrh, pertussis, etc.
Of the many puny, whining infants that are to be seen almost constantly, the largest per cent of them, I think, may be found to be due to improper food, and bad hygiene.
As such, I am sorry to say, there seems to be many so afflicted.
Indeed I have noticed that almost all infants, who, having been deprived of their mother's milk, or whose mother furnished impoverished milk, more or less, were also more

or less rachitic. — In most of the cases deprived of their mother's milk, Cow's milk is used instead. Through want of knowledge, neglect, or carelessness on the part of the nurse, either the apparatus used for administering the milk is not kept in proper condition, or the milk itself is given when in an impure state, or when it has but little, if any nutritious properties.

If pen milk is given to infants, after it has taken on a decidedly acid reaction, which is lactic acid, formed when the milk has "soured" as it is called. This, I hold, is very important in the causation of rachitis, which

is readily recognized when it is remembered that lactic acid is formed by the souring of milk, and that it will, when taken into the system, prevent the deposit of the lime salts, and thus rachitis is developed. I may say in this connection, that experiments have proven that if repeated small doses of phosphorus, be given to certain lower animals, it also will produce rachitis, by disturbing the nutritive process of the osteoplastic tissue.

It is quite evident, also, that any like irritating substance, entering into the ingesta, prevent the normal process of the nutrition

of the bone producing tissue, and thus showing, still further, how, by impairing digestion, this common, yet seldom fatal disease may be produced.

That rachitis may be more easily described and understood, it is divided into three stages.

1st. Altered nutrition; 2nd. curvature and deformity; and 3rd. that of reconstruction.

1st. Stage, or Stage of altered nutrition.

The normal process of the formation of bone, and its growth, is carried on by the nutritious particles of the periosteum, which envelops and affords a protection to bone, and

from the epiphyseal cartilage of bone. From the former growth in thickness, and from the latter growth in length takes place.

A white zone of cartilage, made up of a matrix, hyaline in character, with the the regular cartilage cells, advances from the epiphyseal cartilage. The zone of proliferation is underneath, and near the bone, which is the cartilage that from the formation of cells, and absorption of the matrix, grows softer.

The cells then, each one of them, multiply by division into eight cells, of which are contained in, and distend out the one capsule. At

the diaphysis of bone, such groups of cells almost touch each other as the matrix is all absorbed.
One or two layers of these groups of cells cover over the end of bone about to become ossified.
In the pathological state, however, this process is very much interfered with. Instead of one cell producing eight, it very often produces thirty, fourty or more.
The capsules, also, are increased in number, thus increasing the depth of the zone. As a consequence, instead of it appearing to the eye as a thin, redish gray layer, almost imperceptible at the diaphyseal

end, it looks like, and is a broad, gray, soft, translucent cushion, with a cartilage zone, more like the normal state, on the distal end, and the proximal end resting on the diaphyseal extremity.
Such deviation from the normal process of bone formation, accounts for the characteristic swelling, and softening of bones, with enlargements of joints in this disease. Rachitis is thought, by Virchow, not to consist in the softening of already formed bone, but in the prevention of the new formed layers ossifying. The formation of the [illegible] canals

are, however, at the expense of the old layers, and as the new ones remain soft, the already formed bone become weak and brittle.
The above theory, however, is not universally adopted.
The most probable cause of this disease is, I think, that which refers to the inflamation of the epiphyseal cartilage, and periosteum, as I have already stated.
The symptoms indicating such a state of the bone producing substances most, are the increased blood supply to the periosteum, and proliferation of it and the cartilage, great tenderness and pain on pressure

or motion, with an increase in temperature, showing strong evidence of inflamation.

2d., Stage, or the stage of curvatures and deformity.

In well developed cases, where the lime salts are greatly reduced proportionately, it will be seen possible to bend the long bones of the skeleton, and the epiphysis, the source from which they grow, will be found to be easily compressed, and in some cases crushed by the fingers, as will, also, the short and flat bones. In such a state, it is also found that a knife will readily pare them, and that it is possible to

breathe through them with ease.
The head of the rachitic child is often very characteristic. It is abnormally large, owing in great part to the arrest of the growth of the facial bones, but does not at all times present the same shape. The most common, and the one most characteristic is the square shaped head.
It may be elongated, the two sides coming almost together. Indeed I have seen so many of this latter class, as to almost convince me that it happens equally as often as does the square shaped head.
When the disease begins very early in life, assification of the facial bones

is so delayed, as to prevent closure of the anterior fontanelle until the third or fourth year, which normally closes about the fifteenth month. The sutures, which are also late in closing, are generally depressed, while the frontal eminences are somewhat elevated, and seem to hang over the face, as it were. After having closed, the sutures and fontanelles are often depressed below the level, the former appearing as grooves. From the deficiency in the deposit of lime salts, as has been explained, the bones of the head are soft, of a cancellated structure, and become very thin, especially the occipital and

Parietal bones, and to such an extent as to bring in contact the Dura Mater, and Pericranium. They become so thin, at times, as to be translucent in the cadaver, when held to the light. The most generally accepted explanation of the softening and thining of bones, known as craniotabes, is the constant pressure made upon them, which, on the bones where it most frequently occurs is brought about from without by the pillow, and from within by the brain, since lying on the back is the most frequent decubitis taken by infants. Craniotabes may take place in

intra-uterine life, but as we have seen, it most commonly occurs at the age of six or eight months.

of normally formed bone, and in most cases it is much stronger and firmer. Rachitis rarely ends fatally, as I have stated, although it sometimes does produce death. When an infant's constitution is very much weakened by some febrile disease, which prevents the deposit of lime salts, then keeping the bones in that stage of softness, the second stage, the third never having been reached, death is often the result.

The teeth are retarded in their growth in this disease, not making their appearance until late, as a rule, which is very characteristic. Those

that have appeared, are frail and soft from the want of enamel, and caries sets in at an early period. The soft parts maybe effected in rachitis also, as is the osseous system, giving an abnormal looseness to the joints, as the ligaments and fibrous bands become flaby and relaped.

Symptoms: In most cases of rachitis, the medical man's attention is first directed to the child for the relief of what the parents call "Ever Grown". They so call it because the child is so very restless, and constantly fretting. They find that all their attempts to

direct the child's attention to play and laughter, by fondling and caressing it, are of no avail. Instead of it being aroused by things that it had formerly taken delight in, it now rather seems to be annoyed by them, and its whining increased to cries the more it is moved, and hence the Mothers say it is "Liver grown." We have seen from the above, that the causes are sufficient for the child's refusal to be aroused by amusements. Pressure upon most any part of the body reveals the fact that great pain is experienced from it. So sensitive does the child after

a while become, that great dread of any one approaching is shown by it. From the few cases of Rachitis and cerebral softening that I have seen, I am willing to accept the opinion of Trousseau, that the two maladies are quite distinguishable, in that the above symptoms are quite characteristic of the former, while in the latter the child's attention may easily be diverted, for a time, from its sufferings to cheerfulness and play. Rachitic infants also have an augmented appetite, yet constantly emaciate. They have an accelerated pulse with profuse perspiration, which

are symptoms that can not be mistaken, when there is no cough, or are no signs referable to an advancing tuberculosis. It is nothing unsommon to find the pillow soaked with the perspiration from the face and forehead, every morning. There is a cough, however, that may be present, but which comes from a bronchial catarrh which, more or less, is an accompaniment of Pachitis. Respiration is always, except in the mildest cases, noticed to be accelerated, owing to deformity of the Thoracic walls, and a diminished elasticity of the ribs. As the lime salts are not deposited in the system,

they are eliminated by the kidney and skin, hence the amount of urine secreted is increased, as has been seen in the perspiration. At one time the patient is troubled with diarrhoea and at another constipation. The abdomen is somewhat enlarged, due partly to gas in the intestines and partly to the liver being pressed down by the diaphragm.

Complications. Bronchitis, referred to above, is one of the most frequent complications of rachitis, owing to the age at which it occurs. Such being inflammation of the respiratory organs becomes very serious, as the [illegible] power is very much reduced.

observation of rachitis that has been made, we at once say that hygiene and healthy nutrition, are the most essential things to be carried out in the treatment. As to hygiene, the child's residing place should be supplied with plenty of fresh air, and good light, with all the apartments free from moisture. It should be taken into the open air daily, to add vigor and strength to the system, but without [illegible], or severe handling. The milk of the mother should be examined in all cases where the child is nursing. If she is the subject of a cachexia, notwithstanding the milk appears to be healthy, the child

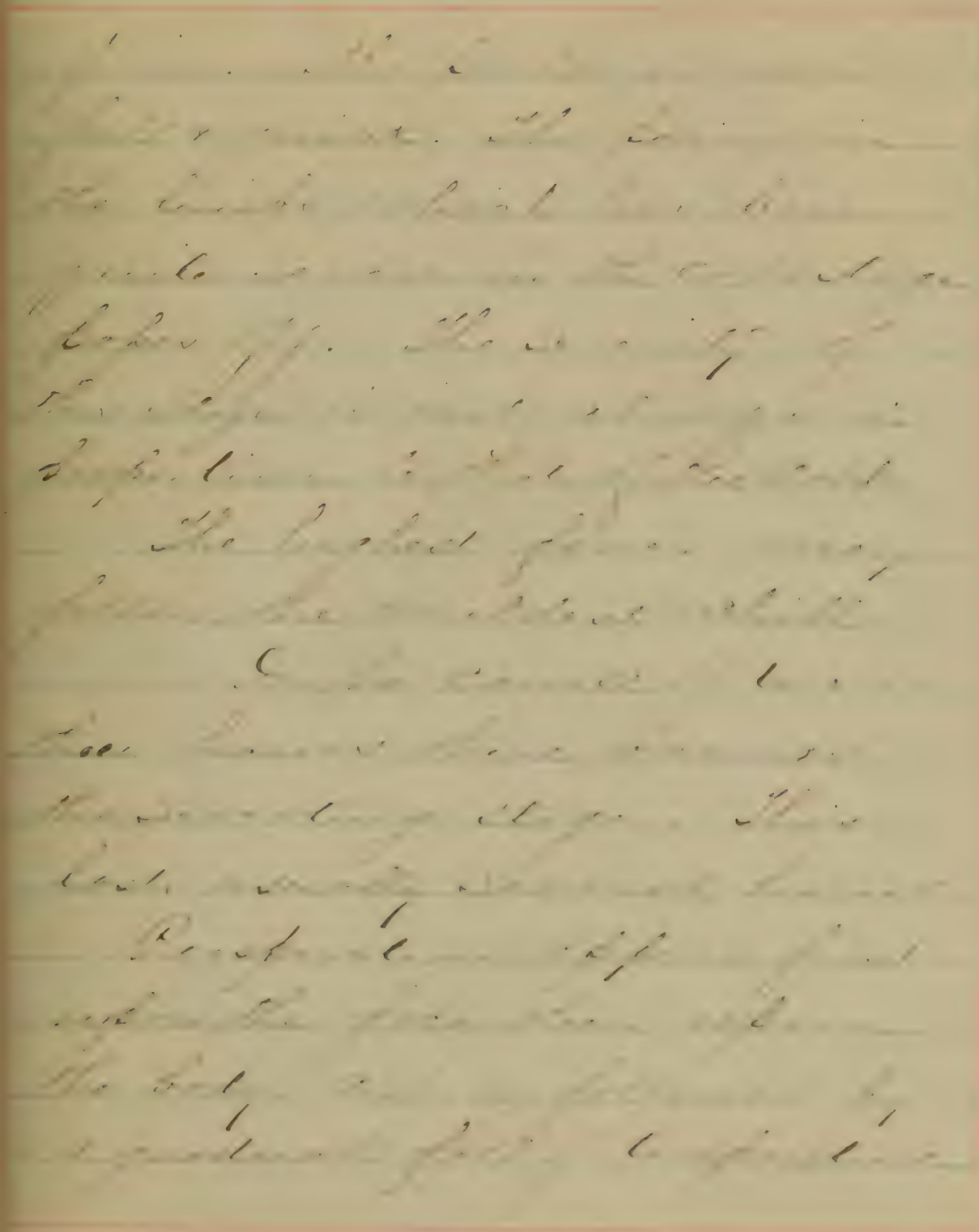
should be removed from the breast at once, and a healthy wet nurse obtained.
If, however, it is found impossible to wet nurse, it a suitable diet should then be selected, which is bland, nutritious, and easily digested, as indigestible and nonnutritious food is one of the factors in the causation of so grave an affection.
As the deposit of lime salts is deficient in this disease indications for their use are, consequently, very strong. Among the foods, good cabs

milk, diluted, if the child is less than six months of age, with nearly one half water, and if older, one third or one fourth water, — lime water preferably, — stands at the head of the list, together with Cod Liver Oil.

If this can not be obtained, condensed milk may be substituted. Barley water with one fourth cream, may be used advantageously if the above are of no avail.

(3) I have said, a very important part of the treatment is in giving salts. Salt boths once

1885



J. Campbell Smith

Intermittent Fever

by

E. T. May M.D.

Georgia.

1885

Intermittent Fever.

The history of the disease shows that it is most dominant in newly settled sections of the country, and even in the principal crop raised, especially when these two conditions are met with in the warmer countries; we seldom find it in our northern countries, or in the most thickly settled portions of our largest cities.

It is essentially a disease of malarial origin, characterized by paroxysms, taking place at certain times with a certain periodicity. In the simple form while it is one of the most disagreeable diseases to the patient, with which I am familiar, it is in the majority of cases without immediate danger. Paroxysms and intervals or characteristics of

[illegible] come on, or later the chill [illegible] cause the attack, but [illegible] the other three or the two [illegible] the [illegible]cating may be present.

When the chill is absent and the other two stages are present, it is undoubtedly of malarial origin, and bears the expressive name of dumb chill.

Some seem to think that a limb or finger may pass through all these stages without involving other portions of the body. [illegible] yet never seen an example of it but I have noticed that in [illegible] it had been having chills for

some time then would occur a neuralgia which would be of an intermittent character, and in regard to time obey the same laws as did the fever and ague and in our southern malarial districts we often have cases of Dysentery which generally at first, seem to yield somewhat to treatment, but soon our patient ceases to improve and it assumes a chronic form, and we try nearly everything in the Materia Medica recommended for such things, but it seems to get no better, and at last almost without hope, as the dreaded remedy we resort to quinine and

and may occur at [illegible]. In these cases the febrile paroxysm is generally after midday, and this is most [illegible] [illegible] [illegible] the intermissions [illegible] [illegible] first the chills which are symptomatic of suppurative inflammation seldom present a [illegible] of periodicity, and are usually accompanied by other evidences of the inflammatory affection.

There may be a [illegible] type which consists of a combination of two simple types. This is generally easily diagnosticated by both the difference in the time of the recurrence and the severity of the attack.

It is often not easy at the

[illegible] to make a diagnosis of Intermittent fever, for the patient may not live, in nor have visited for months a malarial district. There are so many diseases ushered in by chills and we may have nothing to make us suspect the true state of affairs, but after the second or third it is generally an easy matter to make a correct diagnosis, and especially as it yields so well to antiperiodic treatment when [illegible] with which I am acquainted announced by chills.

Regular Intermittent fever is sometimes accompanied by albuminuria, this if attended to

it will not only [illegible] amenable [illegible] to time and will often disappear with the [illegible], with the anti-periodic treatment. When intermittent fever is protracted it is usually followed by intense anaemia, enlargement of the liver, and especially of the spleen, forming the so called ague cake and dropsy is sometimes caused by this visceral affection, and anaemia

Pigment are dark particles found floating in the blood, this is melanaemia and is caused by a pigmentary degeneration of the blood corpuscles and deposit of the pigment in the granules of the liver and kidneys. It is caused [illegible] intermittent-

tic of some form of Malarial disease. The liver has a peculiar bronze appearance with engorgement. The spleen also undergoes softening. Dr. Jones, Rhoades and Pepper found the natural flourescence of the blood to be diminished, during an attack of Malarial Fever and to be restored under the influence of Quinine on the system.

Prognosis- We can generally completely break up an attack of Chills and fever but we can never assure our patient that they will not return, but by proper antiperiodic remedies and good hygiene we may reasonably hope to finally cure him, in fact they sometimes get

well without any treatment, or may though rarely, change to remittent fever. The great danger is that they may continue to get worse and run into intermittent Pernicious. but if treated properly we can with a great deal of assurance hope there is no danger, as it generally yields very readily to treatment.

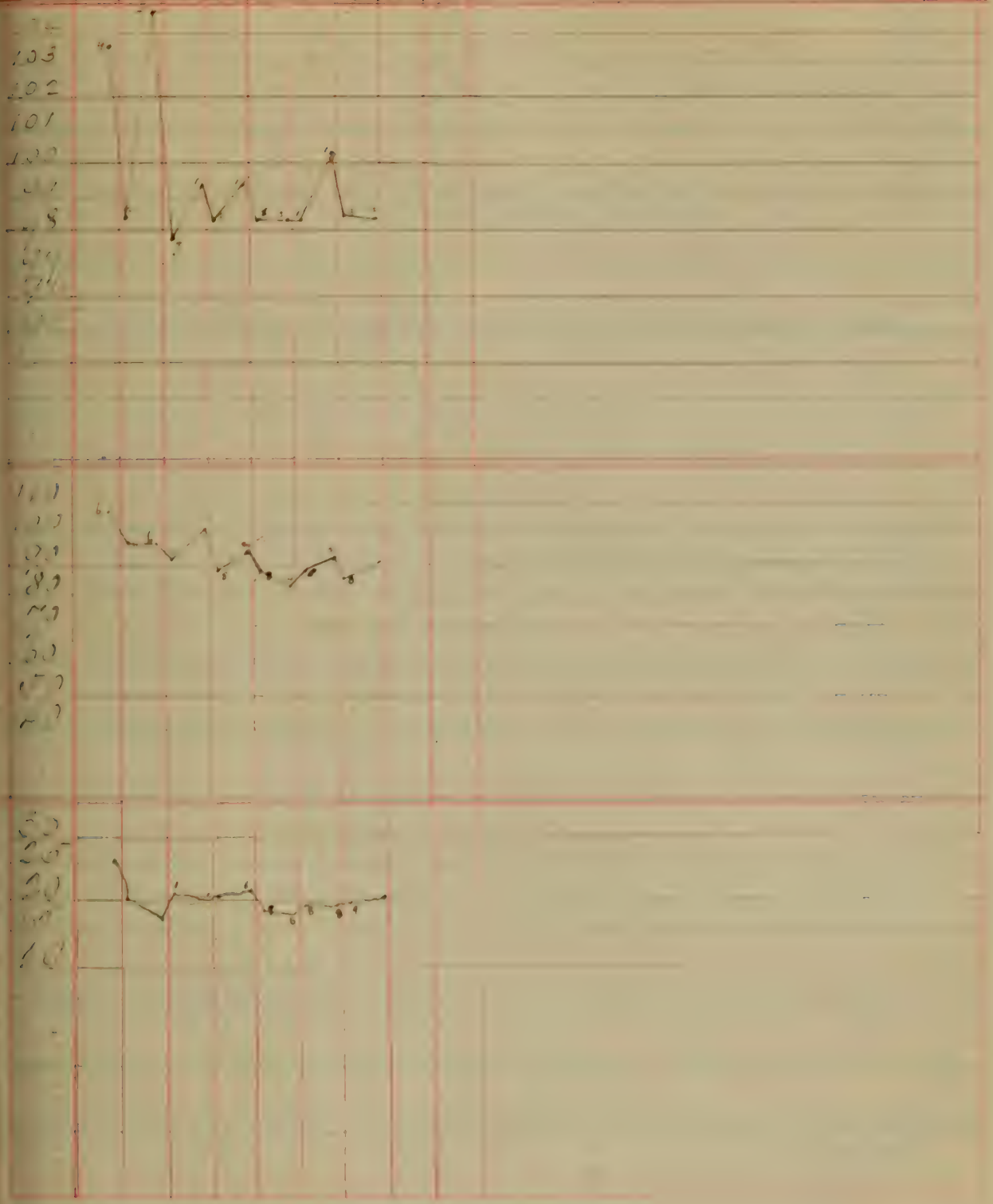
Any thing which reduces the general vitality is conducive to this disease, because it makes the patient more susceptible to any exposures to which he may be subjected. Intermittent Fever are more prevalent in the fall season, and seldom attacks the thickly settled portions of cities but generally those living near swamps, marshes etc. In our southern states the drouth we gen-

much rice in August, and I think even so without this swamps, ponds, creeks and lagoons that at times malaria seems everywhere present and none but the most cautious and those protected [illegible] from the influence are safe to escape: [illegible] a temperate or a tropic climate can produce Malaria." Dr J. K. Mitchell of Phila. Pa. attributed the cause of malaria [illegible] to minute vegetable organisms. Prof. [illegible] of Brussels tried upon himself and proved that the inhalation of certain marsh water algae would produce ague. Dr Salisbury of Ohio has made many observations and experiments tending to show that minute cryptogamic plants

which abound over the surface of
Florida. Do. generate Intermittent Fever
when carried to communities which
were previously free from the [illegible]
and [illegible] [illegible] [illegible] [illegible]
[illegible] in the air [illegible], and [illegible]
of the [illegible] Agro Remans by
a peculiar [illegible] fungus ca-
pable of producing Intermittent Fever,
when these germs are transmitted into
animals to which they give the same
Rhubarb Medicine. There is also a
theory recently advanced by Mr B-
[illegible] a writer in the [illegible] Medical
Journal that the bite of Mosquitoes
sometimes produces Typhoid & Remittent
and Intermittent Fevers, according to
varying conditions & [illegible] [illegible]

least of his theory seems reasonable but I think the probability of it, yet remains to be proven. Such theories require repeated investigations to make them matters of demonstration, if confirmed by such means they make a very important contribution to etiology.

The temperature will vary somewhat according to the severity of the attack. At first in the afternoon it may run from 104° to 105°. Pulse 116 to 120. Next morning perhaps everything will be normal and if the patient has a chill that day the above symptoms will be repeated but if we can that day get it properly under control we will again find a decided fall both



Treatment. It is generally preferable to move the bowels freely but the custom of giving cathartics and waiting for them to act before giving antiperiodics, is not now followed but when we can we do so, I think it preferable to also give a purge, and I think if there are no contra-indications it should be a compound of which Sq. Chloride Mate should form the chief ingredient. Of all the remedies recommended in this disease none are equal to cinchona bark, or some of its alkaloids, and one of the beauties of this remedy is that it can be given at any stage even at the height of the fever and we can generally use any preparation which we may possess. [illegible]

fever which opium is to replace [illegible]
the sheet anchor in our treatment.
If we see our patient while he
cold we should apply hot bottles
or external warmth in [illegible] which
is most convenient, and if the patient
desires it, we can give him warm drinks
but nothing [illegible] stimulating for the
might [illegible] the [illegible] the [illegible]
stage which is sure to follow. When
the hot stage comes on we must try to
make our patient as pleasant as pos-
sible, and thanks to the advance the pro-
fession has made we have no longer
to force down our patient when burning
with fever, such things as hot coffee,
boiled milk, and beef tea, and re-
place him such things as cool water.

effervescing draught, etc., which at one time were thought dangerous, but are known to be both beneficial and pleasant. If we wish we can make his drinks more diaphoretic by the addition of Citrate of Potassium, as soon as the sweating stage comes on, we should then begin our treatment to prevent a recurrence of the paroxysm. Of all the remedies recommended Cinchona as before stated when it can be borne, stands at the head of the list. Quinia Sulphate is the most preferable form for the administration of it. The disadvantages of this are the costliness of the article, but this is now getting almost as cheap as other forms of the

bark, when we take into consideration the small amount required. It is also claimed by some to affect the head more than other preparations, but this is a disputed point and if it does, it is a thing of minor importance, for I have seen it given in immense doses and have never seen any permanent injury resulting from its use. When it can be borne by the stomach (and it generally can be in some form) it is usually the preferable mode of administration. The best way to give it is to dissolve it in Aromatic Sulphuric Acid or the Muriate I. Iron well diluted with water, but this is very unpleasant, but especially with children, and

is more readily taken in gelatine capsules, but we must be careful when administering it in this form or in pills, for they may pass through unchanged and we get no good effect from it, the fever will not be broken and may cause us to make an error in our diagnosis. When we cannot give it by the mouth we may employ the Muriate of Quinia and Urea hypodermatically, but in smaller doses. I find in almost all works on the subject that comparatively small quantities are recommended, this accounts for by nearly all authors on the subject having been [illegible], do not [illegible] to deal with [illegible] where the poison is so concentrated for a short

by experience that in our southern states at times we have to give immense doses before we get any good effects. I have seen as much as much as from one, to one and one-half drachms of Quinin Sulphate given daily. Some prefer to give it in small doses frequently repeated but I think larger doses at greater intervals preferable. Almost everything in the Materia Medica has gained some reputation in the treatment of Malaria. Some opium in full doses say tropiezos or Magendies Solution of Morphia ~~[illegible]~~ "hypodermatically" at the beginning of the attack will abort the chill.

Arsenic of which Liquor Potassii Arsenitis (Fowler's Solution), in ten drop

doses is the best form is highly recommended and is considered to approach almost as near in certainty to a [illegible] as the alkaloids of cinchonaceae. Nitric and diluted Nitro Muriatic acids, are also highly recommended. A bitter made of Dogwood bark and brandy is an old household remedy and which I think a good one, so is Willow bark bark. Some recommend carbolic acid this I have never seen tried, but no doubt it has been useful in the hands of some. But of all the remedies genuine I think is poor [illegible] to them all and in most [illegible] especially in our southern Malarial countries until distinct cinchonism is produced. Let that quantity be that

The [illegible] will [illegible] after [illegible] through a quill.

In giving this [illegible] it better to give for the first two or three days about grass of Quinine [illegible] in the preparation, this will break the chill and then let him continue the above. In this we get the good effects of small doses of Quinine supply the Iron that is needed and the Strychnia and Arsenic furnish an excellent tonic properties.

Most Respectfully,
E. Thomas May.

The Spleen as a Reservoir

The presence of the spleen in all of the mammalia indicates that it has some highly important function in the preservation of the vital unit. Its extreme vascularity, and the fact of its being ductless naturally presents to the mind some connection with the circulatory system. There are two theories in vogue, one being that it is chiefly concerned in the manufacture and destruction of the blood corpuscles, and the other that its function is to receive surplus blood. The first is only of secondary importance, the second the chief action, as may be shown by arguments drawn from its anatomy, physiology, pathology, and from a clinical case, illustrating the results of a splenectomy.

The very fact that an organ as large as the spleen has no excretory duct is significant of some relation to the blood. The extreme softness and vascularity still further carry out this idea. Peritoneum surrounds it, and connects it with contiguous organs in such a manner as to be freely movable when respiration takes place and also permits variation in size, which takes place to a remarkable extent according to the age and size of a person, and more particularly in certain physeological and pathological states. This peritoneum acts as ligaments, being analogous to the ligaments of the uterus, ~~and~~ by their structure permitting expansion and retraction, as in the case of the uterine ligaments during pregnancy.

The envelopes of the spleen are two — serous externally, and a fibrous elastic [illegible]. The serous covering allows a smooth cushion for motion to take place. It is to be noticed that the fibrous elastic tissue is reflected into to the substance of the spleen, and this reflection consists more of yellow elastic tissue than of the hard white, unyielding fibrous tissue, This yellow elastic tissue invests the blood vessels, forming the trabeculae. In some of the mammalia nucleated involuntary muscular fibres are found, and probably also exist in man. All of this points to the fact that the spleen is an organ that allows expansion and contraction

The consistency of the splenic matter proper is very soft hence the name "Spleen pulp", and the areolar tissue is arranged round them in spaces

which are large and intercommunicate and have veins ramifying into them. The fact of the Malpighian corpuscles being hollow, and being placed in the sheath of the arteries, closely connected with the veins, and ramifying with the arteries and capillaries calls attention to the intimate relation between the blood and the true substance of these viscera.

Comparatively speaking the Splenic has the largest sized artery in the body. The splenic artery is directly in the course of the abdominal aorta, running downwards, while the other branches of the coeliac axis are directed slightly upwards, thus even gravitation helping to bring about the requisite action of the spleen. The tortuous course of the artery does not interfere with the blood action, be-

cause an stagnation of excitement of any kind the strong current of blood sent by an over active heart will change a bent flexible tube into a straight one, as seen in the arch of the aorta. The tortuous artery acts beneficially in times of rest of the system by allowing the gastric & hepatic arteries to more easily convey blood to their respective organs. There exists when the greatest amount of blood should exist to the system no obstruction is offered, and on the other hand when it is needed elsewhere we find such an obstruction

The large size of the splenic vein, and the mode of origin of its numerous sinuses, to quote from Gray's Anatomy, arise "as continuations of the capillaries of the arteries; or intercellular spaces communicating in the

pulp; and by distinct cecal "pouches" are extremely significant as going to show the rapidity with which this blood can get off, and that very much more of this fluid is sent to this organ than is needed for its mere nourishment.

The whole anatomical structure strengthens the idea that the natural function of the spleen is a reservoir to receive the surplus supply of blood, relieving the more delicate organs where a congestion may cause if not irreparable injury at least such temporary damage that may ultimately be the cause of death.

The physiology of the spleen still more confirms the reservoir theory

The physiology of the spleen has been a matter of speculation from the earliest period. It has been claimed by European authorities that this organ plays an important part in digestion; that it helps the pancreatic juice to digest proteids, and that the swollen and turgescent condition of this viscus as seen after a meal is analogous to the hyperæmia of the stomach observed at the same time. There is much difference on this question, the majority of authorities disregarding it altogether. The assertion has been made about animals who have suffered from an extirpation of the spleen, little regard having been had to the destruction of collaterals and entire derangement of the nervous system that must have followed

the removal of this important organ. From the present state of the physiology of the spleen the question that it pays any part in digestion is to be entirely disregarded

It is universally admitted that it plays an important part in the manufacture and destruction of the blood corpuscles the transitional state between the white and red corpuscles having been observed in the spleen pulp; and also that the white corpuscles to a considerable extent originate here, because corpuscles similar to the white have been seen with double nuclei and indeed dividing into two cells. This division has been seen to take place also in the lymphatic glands by Ranvier, consequently this is only one of the secondary functions of this organ. Stress is

laid upon the fact by the blood manufacturing theorists of the enormous size of the spleen in leucocythaemia as primarily a diseased condition of the spleen, and that it is not secondarily produced by the surplus of white blood corpuscles being driven here to relieve the more delicate structures, the diseased condition being in the blood itself.

The chemical analysis of the spleen pulp shows an extreme richness in the number of extractives, uric acid being found even in animals whose urine contains none, and of a special proteid of the nature of an alkali albumen, holding iron in some peculiar way associated with it. The various pigments holding carbon ~~together~~ which are also found together with extractives especially the ferro-alkali-albumen are no doubt strong evidences

that the spleen has a remarkable action in the destruction of the red blood corpuscles, yet the liver plays a more important part in this action, for the regeneration and disappearance of these cells take place as readily in a dog after the removal of the spleen as it did before. The constant presence of uric acid in the spleen, and the increase of this acid in the urine in remittent and intermittent fever so often associated with a congested state of this organ seems at the first glance to be an argument in favor of the theory that the special function is the destruction of red corpuscles. But if it be remembered that in these diseases the whole system is suffering from an increased and pathological state of the vital power, rendering the destruction greater than the repair

the nitrogenous elements of the body after the fatty being the first to suffer loss. This increased metabolic action thus naturally shows in an increase of uric acid. The increase of uric acid and urea is also seen in fevers that are not accompanied by any alteration in the spleen, and certainly if it does not affect it in all it can not in one.

Apparently the extirpation of the spleen affects animals very little in regard to the vital processes. Should this be so it would throw complete discredit on the [illegible] that the chief power of this organ is that of a reservoir to receive any surplus of blood, and thus protect the more delicate organs that directly govern life, from congestion and consequent of fatal shock. Let us see the results

of excision. Malpighi performed this operation on a dog in 1687, and merely states that there was no apparent interference with any of the vital functions. More careful watching of animals upon whom this experiment was made showed decided results. These are great voracity upon the part of the animal with abnormal deposition of fat, and a remarkable mental change causing ferocity and irritability. These results were observed both by Dalton and Flint. This latter author gives a very interesting account of the experiment. He removed the spleen from a young medium sized dog who before ~~the before~~ the operation presented nothing abnormal. "After the operation he became exceedingly voracious and so ferocious that it was dangerous to approach him. He would

eat the refuse from the dissecting room, the flesh of dogs, faeces etc and at one meal nearly one-fifth of his weight, which was digested perfectly. and had the same appetite on the following day. This dog had a remarkably sleek and well nourished appearance". The above certainly shows a noticeable interference with both the normal digestion and mental functions of the animal. In spite of these pathological conditions it is stated, that no reasonable explanation can be given, and it is cited as a logical conclusion that no stress can be laid upon these changes because the analogous results to them were produced by the extirpation of a kidney, and that an increase in growth follows castration.

How can they be accounted for? The first stage in digestion is that of a vasomotor

action upon the arterioles going to the stomach and small intestines producing an outpouring of the gastric juice, bile, pancreatic juice etc. Now any excessive amount of blood directed to these organs would normally be directed to the spleen, and a too large amount of the digestive ferments would not be secreted. That it does go to the spleen, is shown by the fact that after the entrance of food into the stomach and for some hours afterwards, the spleen is enlarged and congested. After the removal the physiological hyperaemia of the organs of digestion becomes pathological and as a consequent result there is a pathological secretion of these juices, a pathological digestion, a pathological assimilation, a pathological hunger and [illegible]

of a diseased tissue. It is exceedingly certain however, that there are only secondary results caused by the excessive amount of blood sent to the brain, producing a species of mental derangement as it were; this voracity and gluttony being commonly seen in idiots and various kinds of insanity. But it may be observed why should this excessive blood be directed particularly to the brain and not to the other organs, such as the liver kidneys or lungs. That it is so directed cannot be denied, especially in liver but this organ on account of its anatomical structure can receive an enormous amount of blood without any injury. Still it must be remembered that any alteration in the circulation of the brain however little

whether the blood supply be decreased, or as follows an excision of the spleen increased there will be an alteration in the action of this delicate and vital organ. This hyperaemic condition of the brain if not excessive thus readily accounts for the change in the disposition of the animal and to a large extent to the abnormal deposit of fat and its generally well nourished condition. Suppose such an animal was excited by some external cause what would be the result. First the heart would beat more rapidly and strongly, an increased supply of blood in a given time would be sent to a part. Say the current would be directed to the brain and would there not be expected as a consequence either an

apoplectic seizure or convulsions? In died in one dog who had suffered from a removal of the spleen died in a convulsion long after a recovery from the excision had taken place. In this case the exciting cause was the sudden removal of the animals food. Another dog excreted an increased amount of urine, and apparently suffered from congestion of the lungs which can only be accounted for by the fact that blood was sent to these organs, that physiologically should have been sent to the spleen.

Strictly speaking, growth, reproduction and death is dependent upon protoplasmic activity of the cell without control of any nervous influence, yet that nervous force has a good deal of influence upon the growth and

nutrition of a part is shown by the rapid production of bed sores in injury to the spine and brain, also in such wasting diseases as Typhoid & Typhus fever where the blood is profoundly depraved in quality. Now in an animal which has suffered from an extirpation of the spleen, any superfluous blood that should normally be contained in this natural reservoir is dissipated through the economy, the brain and spinal cord the origin of Trophic nerve fibres receive too much blood and we perceive the reverse condition from that seen in the above diseases, and we can thus readily on this hypothesis, if on no other, account for the well nourished condition and the excessive deposition of adipose tissue perceived in such animals

Having observed the results of these highly interesting and instructive experiments upon the lesser animals it would be natural to expect similar readings upon the highest type of animal life man. Still the human species being more delicately organized, and by custom, surroundings, and especially the deleterious results of civilization, the physical welfare has deteriorated to the improvement of the mental faculties. It would therefore be entirely unfair to anticipate the life termination in the human species. The analogy is only partial, as indeed may be seen in the corresponding effects of similar drugs upon man and the lower

animals, some of the most immune to the human species having no immune action upon certain animals.

The Spleen has been removed from man in numerous cases without any apparent deleterious influence ensued. This is particularly the case when the removal was effected for traumatic injuries, whereas when splenectomy was practiced for disease attended with hypertrophy of the spleen, recovery was rather exceptional than otherwise. The literature on this subject mentions 61 cases in all in which splenectomy was practiced, 21 of which were for traumatic cases all being completely satisfactory, the

remaining 39 for diseased condition of this organ, only 9 terminating successfully. Hemorrhage during or after the operation seems to have been the cause of death. Excision then of this viscus in man seems to be followed by no bad results would be the remark of a superficial observer; yet I maintain that there is such a serious disturbance of the vital function, that it will ultimately terminate in death. Of course in such cases as recorded by Dr Otis in his Surgical History of the War where only a part of the Spleen was removed the balance of this organ will be competent to perform its work

I can learn nothing of the subsequent history of patients who have recovered from splenectomy, and therefore lay but partial stress upon the so called successful results of the operation. Suppose that any of these people had developed a remarkable appetite, an irritability and ferocity of temper with a disposition to obesity, following the same sequence of events that have been observed in the lower animals; or died suddenly, whether from an apoplectic seizure or in convulsions or from congestion and consequent inflammation of the lungs, liver or kidneys, could not the excitation be properly laid down to the removal of the spleen? That the mortality

is so much greater when the excision was resorted to in lymphæmia etc is to be expected because from the long standing overcrowding of this and other organs the disease is no longer local but general, and the system in the enfeebled and congested state is more readily affected by shock and less apt to resist traumatic and hectic fever.

Having thus far examined into the skin as a mirror by illustrating its structure, its function, its changes when the blood is diseased, the effects of its excision, there remains to be stated the clinical history of a case which it was my privilege to observe. The case was this. A gentleman

fully built, well nourished man of about 50, while engaged in a dispute with his step son, a young of about 22 or 23 became without any apparent reason violently angry. He at first confined himself to the use of threatening and profane language despite ~~of~~ his wife and step son doing their best in every way to pacify him. From words he proceeded to blows, the young man acting in the defensive and refraining altogether from using force. At last the altercation reached such a height and the man had raised himself to such a pitch of fury that he acted as if he were insane. The wife became terrified for her son's

safety and brought him to leave the house. He shook himself loose and rushing to the door was about to go, when he heard a fall, and turning around was surprised to see his wife. Father lying on the floor in convulsions. In spite of all that could be done for him he died in a few hours.

At the autopsy the external cutaneous surface showed no bruise, cuts or lacerations and was injected with the exception of a few trifling scratches. On examining into the condition of the internal organs every thing was thought to be normal except the lungs. These were found to be in an acute, active, and highly congested

state, being of a right red colour, and when squeezing a large amount of serum and blood could be squeezed out. The larger bronchial tubes and trachea were found to be filled with a frothy looking fluid streaked with blood, and a piece of lung sank when placed in water. A death certificate was given, the primary cause being put down as congestion of the lungs.

Before death the man complained of no ill-health and there was apparently no cause for this rapid and sudden disturbing congestion. A closer examination however revealed the fact that that the capsule of the Spleen was indurated and thickened

being tightly wound down to the Splen and contiguous parts. There was also found a slight depression on one of the parietal bones but not enough to compress the brain. This to my mind revealed the entire cause, explaining the irritability, fury and ferocity of the man who seemingly no grounds, the condition of the arteries of the spleen retarding the organ from ~~the~~ receiving the supplies of blood the blood being sent by a rapidly and over-acting heart was first directed to the brain thus causing the excitability and fury and finally to the lungs causing active congestion and death.

The results of the autopsy

physiological and pathological study of this viscus are to a certain extent theoretical. High authorities of going over the same grounds state that but little is known of the function of the Spleen. But when we see a man who by disease is brought to the same condition as if the Spleen had been removed, suffering from the same train of symptoms as deduced by theoretical grounds he should suffer from, then theory is put to the fruitful forerunner of fact, and is conclusive proof that the chief function of the Spleen is a receptacle for surplus blood.

H. E. Hale
'83. '84 + '85.

A Thesis

on

Ophthalmia

By

John Moorhead Cummin.

N. Car.

1885

Diphtheria

This is a disease of much antiquity the history of which dates back as far as the commencement of the christian Era. It has been described by authors of different ages under various names; some of which are viz. Ulceration, Croupous and Malignant sore throat.

Definition. A specific communicatible disease occuring epidemically, Endemically, and solitarily; and it is characterized more or less by inflammation of the mucous membrane of the Pharynx, Larynx, or the air passages, and a formation

on the surface of these parts especially on the mucous membrane of the fauces and trachea, layers of lymph or false membrane generally showing signs of bacteria. It was described by Bretonneau in the year 1821-3 under the name of diphtherite, after which was derived the present title "diphtheria" but until a comparatively recent period was rarely seen in this country than at the present date it is one of the most common and fatal maladies of our land. As to the etiology this is an epidemic disease depending

upon an existing poison the nature of which is not as yet clearly understood. But is supposed to be in the form of a minute germ. Described by some authors to exist in the mucous membrane, exudation in the blood and lymphatics of the diphtheritic patients, and this occurring in others is the result and not the cause of the disease.

Diphtheria is closely allied to Scarlet fever and occurs in course of an attack of Small Pox Typhoid fever or measles. It is often limited to certain sections especially to low marshy

districts, and where malaria abounds diphtheria is much more fatal. It prevails largely as an epidemic during the Winter and Spring months it is, may occur at any season; bad hygiene and imperfect ventilation increase its fatality and also favore its propagation.

Persons of a certain age are not equally susceptible to this disease: the majority of cases occur between the age of three and nine years, and at this period of life it appears to be the most fatal. It presents at any age

are not exempt from diphtheria, neither does one attack free the patient from a subsequent attack

Sex. Boys are said to be more susceptible to an attack of diphtheria than girls why this is, it has not been shown

Variations of the disease.

Different epidemics vary according to their character and rate of mortality. Some show a great tendency to invasion of the larynx causing death by obstruction, others to blood poisoning, septicemia gangrene &c, while there is the third class

the patient bears it with comparative little discomfort. three varieties have been described by authors as the Contagious, Septic, and the gangrenous forms. means of communication has already been stated. The poison exists in the exudation and secretions And those employed in nursing the affected ones should be cautious as it is easy for them to contract the disease by breathing the exhaled breath of the patient, it can be communicated also by articles of clothing

Physicians have been known to be pricked blowing through the trachea Canular, and an instance of this kind has been recorded in this City during the ensuing year. While the physician was in the faithful discharge of his duty he inhaled some of the exhaled vapour and consequently he contracted the disease which ended in a fatal result.

Period of incubation it is very difficult to ascertain with accuracy the incubation period of this malady as it is affected by the condition of the individuals

attack and the intensity of the poison Oil has placed it at from three to five days

Pathological Anatomy

The mucous membrane of the fauces is at first hyperaemic, then it become red and very much injected and swollen. There may be seen on the pillars of the fauces or tonsils and very frequently both, numerous minute white or grayish spots these coalesce to a certain extent which gives rise to an appearance resembling a bit of curd on the surface. Here as at any other point

of inflammation small round bodies called by Hunter mi-
crocci are found creeping
up between the epithelium of
the mucous membrane.
Pus Corpuscles congregate in
gray masses upon the
fibrin is found out which
with the leucocytes and micro-
cocci forms a false mem-
brane from one sixtieth to one
twelfth of an inch in thick-
ness after a time another
layer may be found beneath
this and the blood supply is
cut off by a creeping together of
the white blood Corpuscles and

the first layer formed, will become necrosed or capillary hemorrhage beneath the membrane due to congestion; which gives to the membrane the mottled appearance. Lymphatics becomes very much swollen and painful to the touch; Pyers patches and the solitary gland both of the ilium and large intestines are found some what enlarged and surrounded by rings of inflammation

The heart; this organ undergoes various pathological changes during an attack of diphtheria; its muscular texture

is soft and flabby and will not retain its shape when removed from the body, its fibrillae undergo fatty degeneration also The kidneys, some times becomes greatly swollen and conjested and the tubes contains granular matter.

We very frequently have albuminuria the amount of albumen becoming ~~some~~ times very great occasionally, and more especially in malignant cases, there is haematuria Under the microscope will be found, in the former cases hyaline and granular casts.

in the latter blood more or less
modified in character
These conditions of the urine
are rarely of long duration,
and scarcely ever usher in
dropsy, uraemia or any
permanent lesion of the kidney.
Inflammation more frequently
extends from the throat to the
ear, and may produce suppu-
ration and other serious le-
sions in that organ, and
occasionally it spreads from
the conjunctiva to the cornea,
causing opacity, ulceration,
and perforation.
The Spleen is often enlarged or

seldom find this organ enlarged in size: in its substance is formed oil globules. The blood is dark from the presence of Carbonic acid, there is a notable diminution of fibrinogen, and of paraglobulin the white Corpuscles are always increased in number, while on the other hand the red Corpuscles diminish in size

Large masses of transparent material is seen floating in this fluid, which is supposed to be the products of the red blood Corpuscles which are destroyed by the diphtheritic poison

Symptoms: Some patients appear to have had the first symptoms of diphtheria a few hours only after the exposure to the virus. In others it has not manifested itself for eight days. So an attack may be developed sudden or commencing with a chill, followed by fever of 100° headache, nausea and vomiting. There is often delirium, and more especially at night. The pulse at first is very frequent and strong finally becomes weak and compressible. The tongue will be found usually coated and moist

and when we come to the examination of the throat will find the mucous membrane to be very much reddened in appearance and swollen considerable and at various points we are able to see numerous small white specks on the surface which at first presents a moist appearance.
There may be inflammation of the Schneiderian membrane, it is tumid and the patient cannot breathe through the nose and we sometimes have associated with this an acid discharge which excoriates the upper lip and upon

the irritated surface, we will find false membrane to be developed in course of a few hours. The specks upon the membrane of the tonsils coalesce forming a membrane of a whitish grayish in appearance which soon becomes dry and dark, giving a leathery aspect. this can be easily stripped off, leaving a raw and bleeding surface, which will in course of a short time return again. The fever may abate in this disease at the end of twenty four or forty eight hours but the general symptoms improve.

The exudation extends very rapid, the neck becomes swollen, and in many cases to a frightful degree, causing difficulty in deglutition. Epistaxis may occur in some cases, and there has been instances recorded where the patients were in a source of great danger but this is in no wise a common incident.

Air Passages. The disease may extend down involving the larynx causing death suddenly by asphyxiation and this will be seen to be a very frequent occurance in diphtheria

Diagnosis. In a subsequent attack of Croup the exudation is of a soft pulpy character while on the other hand in diphtheria it is firm and tenaceous, in scarlatina we have at the onset of the attack high temperature with characteristic rash appearing on the second day and frequently the attack commences with convulsions and marked delirium, though this is not the case

From Croup. This is a point still in dispute, some of the best authorities of the present

age contend that croup and
diphtheria are one and the
same disease: while other
physicians contend that one
is a constitutional disease
caused by systemic infection
and the other is purely local
malady and non contagious
Prognosis. An attack of
diphtheria however mild is
not free from immediate or
remote danger so in all cases
though trivial the prognosis
always be guarded
The danger is first from
invasion of the larynx. Of
the cases in which the air

Passages become involved
vast majority end fatally
The prognosis in these cases
is always exceedingly unfa-
vorable
Apnoea either causes or con-
tributes to the fatal results
when the larynx becomes in-
volved. The patients cannot
be considered as secure
against deglutitive Laryngitis
So long as the cause of the
disease continues
but the danger from this
source progressively diminishes
after the first week. The
danger is removed from

asthenia or exhaustion The violence of the disease may destroy life within fortyeight hours from the date of the attack or perhaps at an earlier period, and in these cases we can truly say that the disease is of a malignant type but in the larger proportion of cases in which the disease proves fatal by asthenia, the powers of life are generally exhausted and death takes place in the second week

The paralytic affection which are liable to supervene

do not generally involve any immediate danger. The danger incident to these affections relates to innutrition in the cases in which deglutition is extremely difficult or impossible and to affections when the respiratory muscles are involved, in the paralysis.

Treatment. As there is no known specific for this disease, the indications for treatment are to sustain the patient by nutritious diet by stimulants and tonics, and to employ remedies both

local and general as the symptoms indicate the strength of the patient being especially guarded by the administration of beef tea milk and farinaceous articles of food at regular intervals and at the same time avoiding over loading the stomach With reference to therapeutical indications it is convenient and also preferable by some authors to divide cases into those with and those without a diphtheritic affection of the larynx And first of the treatment of those cases in which the larynx

does not become affected. The indications in these cases relate to the general condition and the local affection. Betonneau Trousseau and agreat many other Authors attach chief importance to the local treatment. Internal treatment Chlorate of Potassium in former days was used a good deal. An adult may take in solution twenty grains every three or four hours and five grains can be given to a child every two hours, five or six years old. But I wouldn't think that such treatment wouldn't be continued

for many days Tincture of
Chloride of Iron is relied upon as
it has given universal
good affect. from ten to twenty
gth every three hours, for adults
with or without the Chlorate
of Potassium, Prof Howard uses
Tincture of chloride of Iron
drachm two and a half
aromatic Syrup gth thirty
Sulphate Quinia grains twenty
and aquae two ounces taken
in drachm doses every three
or four hours Prof Howard
also relies a good deal on Mu-
riate of Quinia and Tincture of chloride
of Iron ten grain of the former and one

drachm of the latter in combination with Syrup Simplex given in drachm doses every three hours
Hydrargyrum Bichloride Glycerine and aquae is also used very extensively
Local. Sprays are used of various kinds some of which are viz
Hyposulphite of Sodae Glycerine and aquae. And also Carbolic acid, aquae calcis &c Steam inhalations are highly recommended and are very beneficial thus
Salicylic acid grains five aquae Calcis one ounce in combination with a little glycerine, when there is obstruction of the larynx

tracheotomy should be performed and never delay too long
If deglutitions is interfered with then enemas should be used, say two ounces of some nutritious substance and Prof Howard recommends a compress to be put over the anus Alcohol stimulants, retain strength as much as possible. If there is any diarrhoea it should be checked at once. Beef tea and milk in abundance. Nourishing food is relied on as having a great part of the success in treating diphtheria

John M. Emmitt

A Dissertation

on

"Obstetrical Emergencies"

Dedicated

to the

University of Maryland,

Faculty of Physics

by

J. A. Mansour M.E.

who places the life of herself and child, oftentimes, in our hands to be saved or sacrificed upon the altar of our intelligence or ignorance.

Before taking up our subject proper, we deem no impropriety but rather a necessity to assert our belief that every man aspiring to the practice of the obstetrical science should be the possessor of a cool clear head; intelligent and educated in every sense of the word. His hand should be gentle with every means for overcoming

the many accidents and frightful complications that may at any time arise to tax his resources. If he be not such a man he should ever abstain from obstetric practice, or else use every occasion to fit himself thoroughly for the great work before him and take great care to cultivate and preserve that cool-headedness that is so very essential to the successful obstetrician.

Since the writer has had no experience with the class of cases of which he expects to write on the

will not attempt to go into the etiology, symptomatology, treatment &c. because he could add nothing that has not already appeared in the admirable lectures of Prof. Mittenberger or the many excellent works on obstetrics. With the text books of Playfair, Lushman, Cazeau and Dunn the novice in midwifery, can do little else, in writing on that subject or branch of science, than show his ability as a plagiarist. Hence in taking up some of the most important consequences in our estimation, that may at

any moment arise to embarrass the mind of the practitioner. We will only enumerate with a few qualifications those we which every medical man should be well versed, who expects to practice obstetrics successfully.

Placentae Previae — The abnormal situation of the placenta over the os uteri and its many attendant dangers are all themes that are calcalated to embarrass the young practitioner as much as any other complication that may arise during the course of an abnormal labor and if he should be a [illegible]

excitable hesitating man who has not thoroughly mastered and prepared himself for this important work, and knows not what to do next may more than once in a life long practice, see the mother-and child,- who has confided in his intelligence and ability perish under his own eyes through his inexcusable incompetency to relieve her. There may occur cases of placental trivial which the most learned and experienced would find themselves unable to save but if properly managed the average practitioner will

find, few cases with an unfavorable termination recorded against him. But on the other hand what must be the conviction of the man who is aware that he has allowed a fond mother to perish in the hands of his ignorance. They should at least be grave enough to conscientiously prevent him from ever again indulging in the practice of Obstetrics.

Concealed, Accidental Hemorrhage - This formidable complication although comparatively rare, is less so than many authorities would lead us to believe, and it

has doubtless many times
been the cause of sacrificing
the lives of the mother and
child, when at least the
woman might have been res-
cued had not the real cause of the
accident been overlooked by
the attendant whose inexcusa-
ble ignorance in such a
case needs no comment.
As this class of hemorrhage is
very dangerous to both mother
and child, often indeed prov-
ing fatal before a correct
diagnosis of the case has been
made, the physician whose
attending a case of confine-
ment should ever be on

the alert for the alarming symptoms that characterize this accident, and which are so well depicted by Playfair and others, in order that he may treat it properly from its earliest occurrence, and thereby clear himself from all blame should the case unhappily terminate unfavorably.

Post Partum Hemorrhage — This complication of parturition is, in our estimation, one of the most, if not the most or gravest accident that can possibly befall the parturient woman. It is rendered

double so on account of the "sudden and unexpected" manner in which it may manifest itself soon after the patient has been delivered. The great amount of blood that may in a moment "deluge the clothes, bed, and even the floor" is a sight that will terrify the bravest woman and cause the attendants to shrink from the scene with pallor stricken countenances and breathless lips. It is in this condition of affairs that all turn with imploring looks and appealing cries to the practitioner to save a

kind mother. And it is just here that the timid, excitable man may lose his presence of mind and all his resources, which are so essential, and permit a patient to sink into eternity, that a cooler head and a more fertile mind could have easily saved. I would admonish my colleagues to ever remember that of all the many emergencies that he may be called upon to meet in a long life time, he may find none that will subject his mind, his resources or his

ability to a greater strain or leave him less time for reflection or consultation than a severe case of Post Partum Hemorrhage.

Puerpural Eclampsia - This eminently disastrous affection is classed by some authorities as standing second in the category of the fatal complications that arise to confront the pregnant and parturient female and hurry her from the agonies of childbed into eternity. It is unquestionably a condition that the young physician

will not care to encounter many times during his practice in the field of medicine. But owing to the fact that it is not an infrequent occurrence he should be thoroughly posted on all that pertains to a correct knowledge of its pathology, symptoms and treatment. It is unfortunate that we are not yet in possession of its true pathology, although we are acquainted with its many theories. Whether it be due to anaemia or hydraemia of the brain

congestion of the brain
Spinal cord or meninges,
Uraemic poisoning, cholae-
mia, direct or reflex irrita-
bility of the central ganglia
of the nervous system are
theories that are not yet
proven and may long re-
main so. But that is no
reason why we should re-
lax our efforts in seeking
out its true pathology and
treatment. It is possible
that the humblest of us
may, by observation, study,
perseverance and determina-
tion discover the true cause
of this dangerous affection

and thereby make a grand contribution to science. promulgate a lasting benefit to woman and a never dying name for ourselves. Fortunately for ourselves and patients the treatment for this affection is not so obscure, but better understood than its pathology. That our success in dealing with it is much greater, and the mortality much less during these modern days of anaesthetics than in the bygone days of unqualified venesection is an undeniable

fact. In concluding this subject we have only to say that we consider it of the utmost importance that every obstetrician familiarize himself with everything that is at present known on the [illegible] and treatment of this highly interesting and distressing [illegible] and [illegible] that he may do [illegible] science affords to bring the [illegible] child safely through an attack of that dreaded affection [illegible] Eclampsia

I have now enumerated some of the most important emergencies, though I have omitted many of greater frequency and of less gravity, that may occur. Unfortunately, during the course of partition. Of course it was not our intention, nor do we think it would be expected of us in our limited space to dwell on all the topics that might properly come under the title of our thesis. But from the beginning we have endeavored to

keep steadily in view the necessity of familiarizing ourselves with those complications, which, perhaps, are far less common than many we have left unnoticed, but which are doubly important on account of their rarity, the deleterious results they exert upon patients. The foresight, the presence of mind, and the energy required for their proper treatment.

Now we have about done with our subject, and if we have only pointed out the road that

may in any way con-
tribute and aid to the
young practitioners knowl-
edge of the obstetric
science, and thereby aid
in alleviating some of
the dangers of the par-
turient woman and pro-
moting the welfare of her-
self and child, we have
more than accomplish-
ed or succeeded in
doing all that was aimed
at and are delighted
with our first effort
in this direction; if we
have failed it is not
more than we anticipated

or could be expected from an undergraduate and a novice in art and science of Mid-wifery.

J. T. Murray

December 31. 1884

"Thesis;"

By

Howard C. Reamer.

February. 6th 1885.

Yellow Fever.

This affection is a Specific fever which has received its name from the yellowness of the skin, which is one of its most prominent symptoms

Many times yellow tinge of skin in other fevers, but they are easily diagnosed by some of the symptoms yellow fever being absent.

The morbid appearances most frequently met with are found in the liver; Kidneys, Stomach, and intestines.

The spleen is rarely affected, which is remarkable as it is one of the organs most frequently affected in infectious diseases. The liver is of a rather pale yellow color, which may affect the whole organ — or only some parts of it.

It may be enlarged, but as a rule it is not. The yellow color has been shown by Alonzo Clark to be due to drops of fat in liver cells. Some writers say that fat has also been found in the interstitial tissue. Reddish brown stains also frequently present which are due to extravasation of Haemoglobin.

The kidneys are enlarged and often contain extravasations of blood, acute diffuse nephritis being occasionally found. The cortex is often swollen congested and presenting a yellowish appearance. They are often seat formerly a tow degeneration. The epithelial cells convoluted tubes may contain molecules of fat. Abscesses and collections of emi-

grated white corpuscles are also frequently seen.

The mucous membrane of stomach and intestines usually swollen and congested and attended by with hemorrhagic discolorations. The stomach often contains a fluid which is analogous to the black vomit, which is symptom of the later stages.

The lungs often congested. The pleura and other serous membranes present bloody discolorations. In some epidemics degeneration myocardium has been seen. The attempt to discover in the tissues an organism peculiar to the disease has not been attended with success.

It is divided into three stages. The first stage being regarded as the

disease proper, the second and third stages as sequels. An attack is usually abrupt attended with languor, loss appetite; chilliness pain in head, then the fever which quickly reaches its maximum; which varies from 102° to 110°.

The tongue is moist and more or less coated. The bowels are generally constipated, tenderness on pressure over the abdomen exists. The pain in head most intense in frontal region. Some epidemics are accompanied by great pains in limbs & sclerosis; but in most cases the mind remains clear.

The fever continues variable period, sometimes only few hours and in other cases as long as three days, then follows a re

sation or abatement, given the being termed the "State of Pulse" or second stage.

The second stage is usually short the patient in mild cases rapidly convalesces, but in grave cases the patient is attacked ~~with what is termed~~ with symptoms which are attended with danger (great). the symptoms assume much graver character, the pulse becomes weak and less frequent and has been called "Gaseous Pulse".

Vomiting appears if not already present; in larger proportion cases black vomit makes its appearance, this in connection with other symptoms is pathognomonic of the disease. The vomited matter is blood, which has been acted upon by Gastric [illegible].

The matter vomited is thus liquid of reddish brown or black color; it is sometimes bright red due to the blood being astacted upon by gastric juice.

The secretion is said sometimes excoriating the throat and lips. The sediments contains particles of food, blood, pigment, epithelium, and in some cases fungus spores. The black vomit is sometimes ejected with force but in others by an act of regurgitation, the vomit is absent a day or two before death.

Blair has described a vomit which occurs prior to black vomit, which he calls "White Vomit." Tenderness over pigastrum is sometimes very cracked.

The tongue is frequently cracked.

and red; in some cases covered with a creamy coating. Albuminuria is of frequent occurrence in grave cases; blood corpuscles; casts and epithelium often present in urine. The urine is sometimes yellow, [illegible] bile staining.

The conjunctiva is yellow and eyes red, thus making the eyes assume a peculiar appearance; the yellowness remains short time after death or convalescence. Pelechiae, hemorrhages from nostrils, uterus and the gums are often observed.

The nervous symptoms are probably due to uraemia. Delirium may exist during fever, and disappear after words. Most cases are attended by [illegible]

nervous prostration, but there are exceptions to this rule. Some patients pursuing their avocations until appearance of black vomit, these have been termed "Walking Cases" cases are recorded where a man leave sat and read after the occurrence of black vomit. The face is variously described some authorities saying it presents anguish terror - varying etc. The duration of disease after febrile paroxysm is variable.

The third stage or stage of collapse is characterized by prostration, feebleness and irregularity of pulse, cold extremities, delirium in some cases. The intellect generally remains unaffected

coma and convulsions may occur they are attributed to uraemia. sometimes leave restlessness. Relapses sometimes occur after the patient seems to leave entirely recovered. In most epidemics certain number cases are devoid of danger that would not be recognized if the disease were more prevalent. Shortness of career is prominent feature of this affection, the average duration being less than a week.

It is difficult to diagnose in the first stages unless there is an epidemic. Or symptoms which render the diagnosis easy are the abruptness of attack, pain in back limbs etc. In cases which progress beyond the

febrile stage the symptoms rendered diagnosis comparatively easy it cannot be mistaken for other fevers as we do not often have jaundice accompanying them and no other affection is attended with black vomit.

The mortality varies in different epidemics, it ranges from 10 to 90 % the average according to La Roche is one death in two and thirty two hundredths. The number deaths vary in different times of same epidemic; the symptoms which are unfavorable are great prostration black vomit determine and tendency to collapse. The [illegible] should be guarded as the cause which

present very mild symptoms: often terminate fatally, the patients usually die from Asthenia or Uraemic poisoning.

It is generally limited to warm countries the city of New Orleans being the city of the United States which suffers most from epidemics. It is not known what is cause of it, but it may be shown to be due to an organism; as many diseases have been traced to a parasitic origin.

It is not settled whether it is contagious or not there being contagionists & non contagionists; both of which have strong evidence in support of their respective theories, but the non contagionists seem to be in the ascendency.

Some of their evidence as to its not being contagious being its confinement to certain territories, and being destroyed by frosts, also its breaking out among populations not subjected to contagion; — doctors and attendants not becoming affected. Cases have been reported in which persons have swallowed the black vomit; and slept with patients and did contract the disease.

Facts show Yellow fever is an infectious disease the nature of the infection is not understood. A high temperature is essential to its causation. Humidity of atmosphere has been thought to favor the disease, but it has not been conclusively established.

Those [illegible] those living on the ground floor, more liable to be attacked than those in upper stone.

The miasm is more active at night.

It appears that badly [illegible] favor the cause, hence the importance of sanitary measures should be observed.

The nations of yellow fever districts are rarely attacked, those people who go to a country during the [illegible] are more susceptible to the cause. The negro race is singularly exempt from the [illegible] to the disease, statistics showing a very small mortality. Patients of all ages are affected, males more [illegible] to the disease than females

The Spirical cause is destroyed by cold. The epidemic rarely lasts over two months. The period of incubation is variable, being between two & fifteen days. Cases have been reported in which it lasted six weeks.

There is no one plan of treatment which can be relied on in all cases. The treatment is mainly expectant. The mild cases leave a lend more to get well. A great number of malarious cases are necessarily fatal, hence large fatality is not sign bad treatment. Certain proportion of recoveries under any plan treatment does not prove its efficacy, as different epidemics attended with variable

mortality. In mild cases no active interference is necessary; restricted diet & quietude ventilation and other hygienic regulations should be afforded the patient. The palliative treatment in delirium is administration anodynes cold applications to head sponging the body and laxatives when constipation exists. Blood letting is rarely indicated. In cases much fever sponging body, antipyretics are beneficial. Excessive purgation is therefore, as it causes increased congestion of alimentary canal, and also produces weakness.

It has been thought beneficial to produce ptyalism, but this practice has at present few adherents.

Remedies to relieve gastric symptoms are often needed. Counter irritation, blisters, sinapisms, cups and anodynes. Creosote, hydrocyanic acid & calomel are beneficial in irritable stomach. Acetate lead combined with opium useful to prevent hemorrhage & black vomit.

Restlessness & coma vigil are benefitted by opium. When deficient urinary secretion exists, diuretics are indicated. If tend even to collapse use stimulants and nourishing diets. If stomach too irritable, return food give by rectum or hypodermically.

Thesis

Seasonal Tendency to, and the Cure of Disease.

A. Kimmelstiel

University of Maryland

February 14th 1885

Baltimore

Seasonal Tendency to and Cure of Disease

From extensive reading, close observation and considerable note taking I have been able to present the following few points upon a subject of paramount importance and at the same time one that can not fail to interest a medical man. For of all topics there is none other which a physician is so constantly called on to expatiate upon than this. Therefore I think I am right in saying that it can't help exciting the attention and [illegible]

of any one who cares anything at all about such subjects.

The existence of seasonal disease is too well established for me to enter into any extended argument to substantiate the truth of the statement. For from the era of the fathers of medicine to our own day the experience of mankind has borne testimony to the variations in the prevalence of disease at different seasons of the year, and to the fact that the same kind of disease assumes a different aspect at various seasons. It is only necessary to refer to the occur

rence of the London plague from 1813 to 1665 which was vastly developed in the hot season. The occurrence of yellow fever at the end of summer in our southern states, the prevalence of special eruptive diseases at different seasons and the occurrence of inflammatory diseases in cold seasons are illustrations of universal belief upon this subject.

We can not but admit that disease is in its principal forms an exaggeration of a natural tendency existing in the human body, a tendency that only becomes a disease when

carried beyond a certain limit. Thus we find a person of full habit especially liable to diseases in which exhaustion is a prominent feature and one of plethoric habit peculiarly liable to congestion and inflammatory diseases.

The human system varies in its amount of vital action in a very definite manner, the maximum being in the spring, the decline and minimum in the summer, the minimum and increase in the fall, and a constant elevation in the winter. As a rule the diseases of the cold

of summer are those of exhaustion, while those of winter and spring are of an inflammatory character, and those of autumn and the end of spring are marked by such conditions as the outcome of rapid variations in the animal life in its relation to the influence of external agents. There is also a variation in the kind of disease according to the advancing tendency of the system so that in the last part of spring when there is the beginning of a downward tendency of the vital powers, the attacks of disease will show

an asthenic type till they finally terminate in the diseases of exhaustion so prevalent in the summer season, while on the other hand diseases occurring at the end of summer and early autumn change their aspect from the asthenic form to merge into the sthenic condition of winter. Hence there are sthenic and asthenic conditions, and conditions varying in a definite direction between them and as they are due to the amount of vital action that results from the influence of the agencies which constitute the season so will the [illegible]

or asthenic character be manifested at their respective seasons. With this plan we may not only foretell the character of disease at a given time of the year, but may also know the variations in the type of the same disease. Thus for example an attack of scarlatina occurring at the end of a hot summer and with a warm and moist autumn must manifest a positive adynamic type while on the other hand if it occur after the cold weather has set in, or during a cold summer, it will be more and more inflammatory until the system is no longer very

liable to that form of disease.
There are diseases which result from an arrest of the natural tendencies of the system. Thus if when the temperature is increasing, and the skin is required to be more active so as to produce great dispersion of heat some condition occurs which leads to arrest of or a serious diminution in the action of the skin, thus the natural tendency of the system is thwarted and the only condition compatible with health being for the time set aside, a state of disease immediately ensues. This is daily illustrated by a cold

of the system and although the influence of external agents will in the end draw the vital change of the body in their train yet there is not an uniform readiness to submit to their controlling power. This is generally referred to the constitution of the individual so that it said that such a one "suffers much from hot weather", or he bears hot or cold weather well" according to the peculiar tendencies of his system to aid or resist the influence of external agencies. In this doubtless lies the explanation of the selection of a few victims when [illegible]

exposed to the same morbid conditions; for it is well known that although there may be an epidemic of influenza or an outbreak of cholera which may extend over the entire city yet only a small proportion of the population thus exposed will be seized by it.

The dangers to be apprehended in the progress of disease vary with the season. In the maximum and minimum conditions of the system we find that causes have long been acting and have gained power by continuance hence the danger will increase

as the season progresses. This is remarkably the case in the summer season as a man-
fested by the progress of cholera and in the winter season by the progress of bronchitis.
In the season of change the danger lies in the difficulty of adapting the body with its numerous functions to a new order of external phenomena. Hence danger will be greatest at the commencement of the period of change and this may be well illustrated by the early severity and special cause of death from eruptive diseases at the

two periods of change. The diseases of hot weather show an adynamic and those of cold weather a dynamic type, while the characteristic of the spring and fall months is that of change.

The diseases of the alimentary canal have their maximum intensity and frequency at the period of minimum vitality. Diarrhoea is the most marked illustration. For diarrhoea may be regarded as a disease solely of the minimum period of vitality and when it occurs at other periods we may readily agree that is due to fortuitous circumstances. Cholera in its various outbreaks

in England occurring at the period of greatest mortality has proved itself to be absolutely a disease of the minimum period of vitality. Indeed facts show that there was a preponderance of mortality in August and September — the two months when vital action was at the minimum.

The greatest mortality in chest diseases is found in the periods of increasing and maximum vital action, and the least mortality at those periods of minimum vital action. This is well shown by the deaths from bronchitis, pneumonia

and pleurisy, especially in bronchitis, in the cold season of the year that is at the period of maximum vital action. Pericarditis follows precisely the order of pneumonia and has its maximum mortality at the period of maximum vital action. Encephalic diseases occur for the most part in the cold season. Convulsions are in excess at the maximum period of vitality. Eruptive diseases prevail mostly at the seasons of change. At the end of summer we are subjected to the evils of the soft sensitive and perspiring skin being brought in contact with the severe equi

noctial blasts of autumn, the
enfeebled powers of assimilation
struggling to supply the increased
vital transformation which the
cooler weather demands and
the active pulsation of the heart
opposed by the decreased action
of the skin which being accom
panied by contraction of the
capillaries offers an obstruction
to the current of blood at the sur
face and causes it to accumu
late in the internal portion of
the body. These and other oppo
sing influences are doubtless
the cause of much autumnal
disease just as the spring dis
eases are due to the antagonistic

influences of a new order of external phenomena upon a system that may not be able to adapt itself quickly to fresh influences. Scarlatina and typhus exhibit a remarkable correspondence since both are most fatal in the increasing periods of vitality and the least fatal when the vital powers are at their highest. Measles and scarlatina show a remarkable contrast, for the greatest mortality from the former occurs at the period of decreasing and the latter at that of increasing vital changes. Mortality from small pox is greatest at the period of maximum

the ingesta and egesta. There is equal reason to believe that it varies also with seasonal changes; and is the greatest at that period in which the barometric pressure is the least when the temperature is increasing. In the spring these conditions exist more commonly than at other periods. It is almost certain that in spring there is the greatest quantity of blood as at the end of summer there is the least. Moreover in the spring there is a general temperature so that the blood is distributed freely to the skin while at the same time it is abundant at the centres

so the change of seasons cure disease. This is natures plan of treating and curing diseases, when we refer to the progress of an epidemic, or to the chronic and constitutional peculiarities of persons.

Seasonal change is the bulwark of safety and security from epidemic and pestilential diseases. If there be a condition of system in which a disease exclusively appears it is natural to claim that as that condition changes into its opposite it will not only cease to produce it but will even cease to support it and in truth, that the system will in due time fall into its natural and healthy state. Thus for

the sake of illustration we find an individual upon whose system the hot weather and other phenomena of summer have had vast influence subjected to general languor muscular relaxation impaired appetite and power of assimilation and weak circulation, all of which tend to produce congestion and dropsical effusion. Such a one on the coming of cold weather should find these conditions in process of removal and his restoration to health more or less complete. This is caused by the new conditions in which he like us all is placed; for it has been previously shown that the cold season will increase vital action and

this will bring his appetite back to the normal state and increase his power of assimilation and absorption, will also diminish the action of the skin, therefore the force of circulation will be increased and consequently the tendency to congestion will be removed and his tissue will receive a favorable impress from a new condition of things. A change of season will to a great extent render more hopeful every hopeful case and will cure such as are capable of cure. In like manner in regard to pulmonary diseases which prevail in winter and early spring. They are cured as far as they are capable by the new conditions of [illegible]

which with diminished vital changes, freer action of the skin, lessened force of circulation and less irritation from the breathed air present the very conditions which the case evidently requires. The most remarkable illustration is the beginning and cessation of fatal epidemics such as plagues and cholera, for as their origin is obscure and progress frightful, so the cause of their disappearance is unknown. The suggestion of an explanation is found upon that which has already been maintained — the change of the vital powers of the body connected with the change of seasons. The exact progress of the epidemic is that

of the varying powers of the system. It begins as they are declining, gain force and power as they decrease is the greatest at that time when the system is the weakest it decreases as the varying powers of the system increase and the epidemic disappears when the varying powers of the system have recovered their original strength. Therefore it is evident that the methodical nature employs in the arrest of an epidemic and the cure of disease is one based upon the ordinary action of external phenomena upon healthy and diseased men alike. The result of treatment in acute diseases varies with the period of the year. This has been strikingly

shown in various epidemics, particularly those of cholera, influenza and scarlatina, in which it was always remarked that the disease was most virulent at its first outbreak, and after that time remedial agents appeared to be more efficacious; this is doubtless attributable to progressive seasonal change. It is equally true with regard to treatment of ordinary diseases. Thus for example any condition of exhaustion appearing in the last two months of summer is far less amenable to treatment than one appearing at the beginning of autumn; and in practice this is recognized by the recommendation the former mentioned patients

receive to go to the seaside or to northern climes where they may anticipate the good effects of autumnal weather while the latter class remaining at home are soon restored to health.

An inflammatory attack occurring at the end of spring is speedily relieved while one of pneumonia commencing in January is almost certain to last until the following summer. The reason of this is that as disease is most commonly the result of an excess of seasonal condition, it must follow that disease will be most intractable while that excess lasts and the [illegible] when the excess of seasonal condition declines. When we treat sthenic diseases

in mid winter we may not only treat them more energetically than in the fall and spring but shall certainly find the attacks more prolonged and particularly if the patient can not afford to command an artificial season.

Thus we can well exclaim that in all the various operations of nature her laws are as incontestable as the first great Cause that gave them existence.

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